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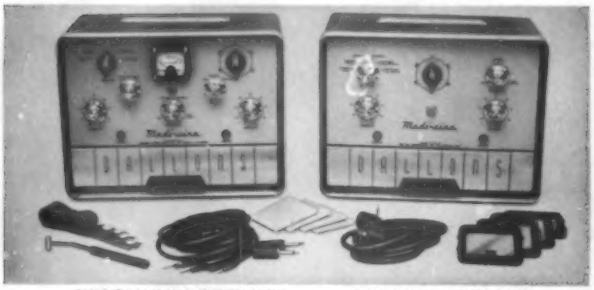

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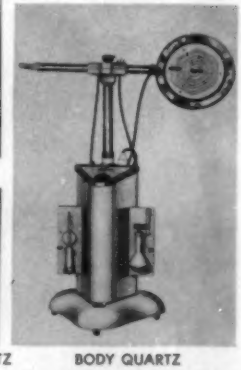

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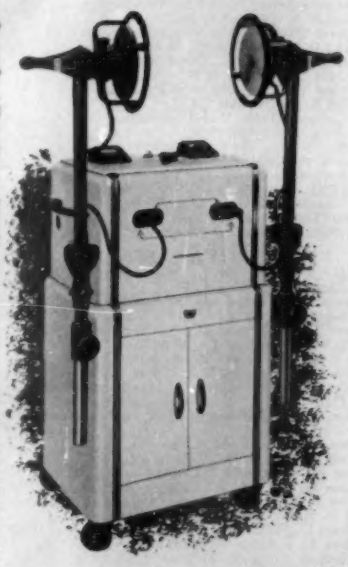

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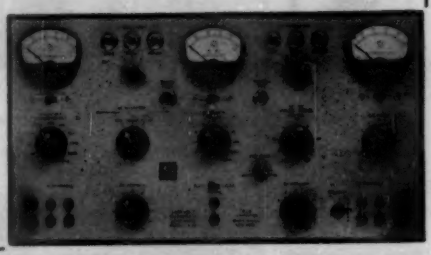

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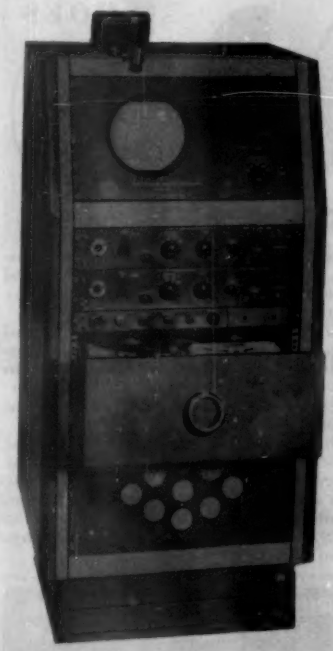

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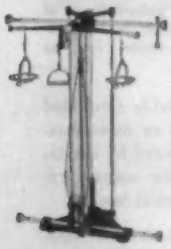

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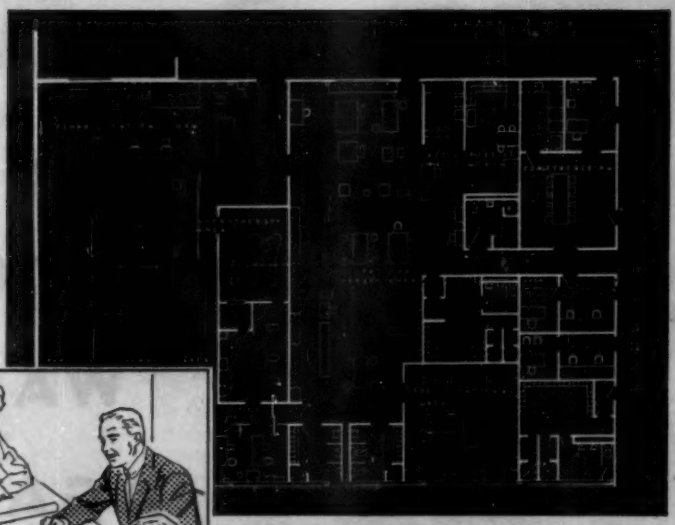

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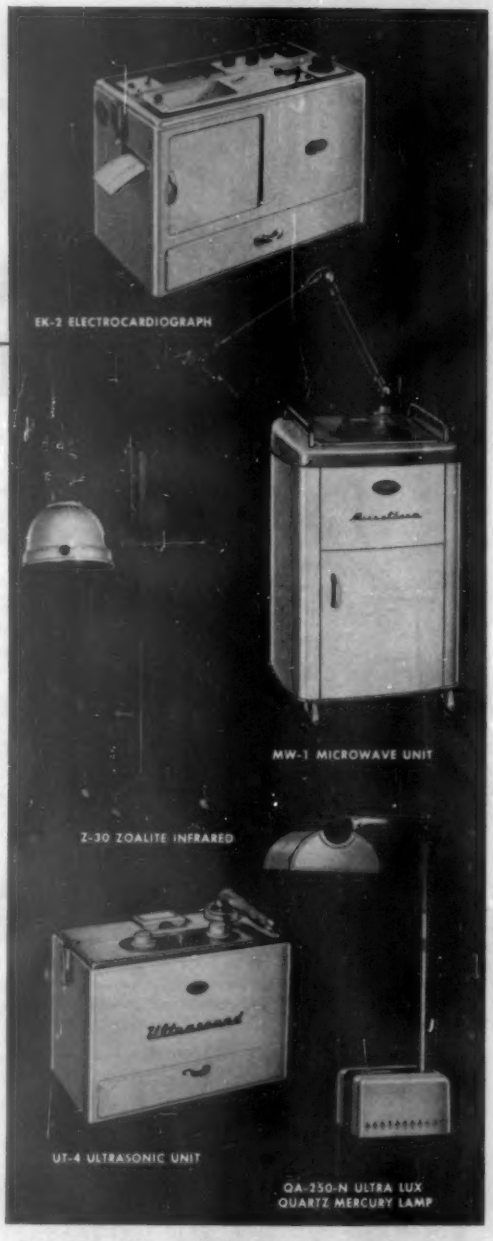

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Application of Rehabilitation Technics in Respiratory Insufficiency

Leon Lewis, M.D.
San Leandro, Calif.

● Chronic respiratory dicability is usually treated by technics applied according to the specific disease entity, not always in clear relation to the abnormal physiology which exists. There has been only limited application of the principles of rehabilitation in the management of respiratory disability. These principles would require the use of an integrated physical (respiratory assistive), pharmecologic, immunologic, psychosocial and broad medical-surgical program determined by the changing needs of the individual patient. Experience in total care of poliomyelitis patients with respiratory disability has led to a new approach to the management of other seemingly unrelated problems. Chronic respiratory insufficiency and acute crises due to pulmonary emphysema, fibrosis, atelectasis, kyphoscoliotic lung compression and many other conditions have been successfully managed by the use of any or all of the following measures: tracheostomy to diminish respiratory dead space and improve freedom of air flow; bronchodilator drugs to diminish airway resistance; mechanical respirators of many types to assure adequate ventilation and to control respiratory acidosis; oxygen to maintain an adequate partial pressure of oxygen in arterial blood; antimicrobial drugs and vaccines to eliminate infection; pneumoperitoneum to help restore diaphragm-lung relationships for effective breathing; resection of space occupying cysts or diseased lung tissue; physical and occupational therapy for general strengthening and for specific improvement of respiratory muscle function, and psychological support and social service, including vocational rehabilitation, paralleling the medical program.

During the past 30 years there has been an impressive shift of interest in respiratory disease. Until successful treatment was achieved by the introduction of antimicrobial agents, attention was focused on the pneumonias and tuberculosis. With achievement of better success in the management of these infectious processes in the lung, attention has been turned to other chronic respiratory diseases and to cardiopulmonary disability in general. This has necessarily resulted in great advances in knowledge of respiratory physiology and has led to the development of remarkably precise methods of functional evaluation. The extent of interest in respiratory function and chronic disease is indicated by the increasing number of publications in this field, the development of highly specialized laboratories throughout the world, and the introduction of new diagnostic technics in the more advanced teaching hospitals.

Unfortunately, the rate at which new technics are accepted and utilized leaves much to be desired. It is more than a quarter of a century since accurate methods of blood gas analysis were developed, yet it is the unusual major hospital which has adequate facilities for determination of arterial oxygen saturation, arterial blood pH, or concentrations of gases in alveolar air. As a consequence, the patient with chronic pulmonary insufficiency has either to be fortunate enough to be referred to a special research center or to go without the benefit of methods of diagnosis which should be universally available. The recent growth of cardiorespiratory centers around cardiac surgery teams and the increasing interest in pulmonary physiology seem to be closing the gap between availability of services and their need.

Progress in this field is also related to another phenomenon of historical interest — the rapid development of special centers for the treatment of respiratory paralysis due to poliomyelitis. Since the first one was established at Houston, Texas in 1950, these centers, concerned not only with respiratory paralysis but also with the physical and psychological effects of a highly destructive disease process, necessarily turned their attention to the problem of total care and broadly conceived rehabilitation. Most of the 15 regional respiratory centers have been called upon from time to time to assist in the care of patients with respiratory problems other than poliomyelitis. In many instances patients with chronic pulmonary insufficiency or acute life-threatening asphyxial states have been carried through to recovery by utilization of technics which are identical with those required in respiratory paralysis.

It should be emphasized that the type of treatment to be described involves no new therapeutic methods. The literature on the treatment of pulmonary insufficiency refers to every detail of the procedures discussed in this report and isolated instances of successful application of the technics described are well known

Read at the Thirty-fifth Annual Session of the American Congress of Physical Medicine and Rehabilitation, Los Angeles, September 10, 1957.

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The Poliomyelitis Respiratory and Rehabilitation Center is aided by an annual grant from the National Foundation for Infantile Paralysis, Inc.

to respiratory center personnel. However, recent textbooks and articles on pulmonary insufficiency, respiratory acidosis, right-sided heart failure, and other aspects of the problem do not discuss integrated total care programs focused on rehabilitation as essential means of management. In particular, they fail to stress the importance of mechanical assistance of respiration as a means of long-term respiratory rehabilitation as opposed to an emergency procedure for threatened asphyxia.

Diagnosis and Treatment

Adequate ventilatory air flow implies a supply of air to the alveoli sufficient in quality as well as rate of flow to permit the diffusion of oxygen into pulmonary capillaries and the diffusion of carbon dioxide out of the capillaries into the air spaces, with maintenance of normal alveolar gas relationships. Derangements of function which occur in respiratory insufficiency may be related to disturbances in the airway or in the function of pulmonary tissue. These, in turn, produce effects upon circulation, electrolyte and acid-base balance, and ultimately upon total function including mental as well as physical processes. As in every other severe or chronic illness the primary and secondary disturbances become complicated by *disuse phenomena* which may assume major proportions in respect to morbidity and may greatly affect potential recovery.

Comprehensive diagnosis must be accompanied by comprehensive treatment. With respect to airway problems it is necessary to determine whether there is obstruction as a result of secretions, bronchospasm or the check valve effect which results from diminished elasticity of the lungs.[1, 2] If secretions cannot be expectorated, and particularly if consciousness is impaired, tracheostomy should be considered. It is probably a good rule to recommend tracheostomy if deep coma persists for more than 24 hours or as soon as adequate ventilation cannot be assured even by use of mechanical assistive devices. Tracheostomy should also be considered as a means of diminishing the anatomical and thus the functional or physiological dead space. If bronchospasm is a factor in airway obstruction, a bronchodilator (such as isoproterenol hydrochloride) together with a wetting agent (Alevaire, Tergemist) should be administered in a constant aerosol stream either by tent, mask, or tracheostomy adapter using oxygen or an air compressor pump to generate the aerosol. When tracheostomy is performed, the air stream supplied to the tracheostomy orifice should be wetted constantly with a wetting agent or with an aerosol of sterile distilled water.

The use of tracheostomy may be essential in the treatment program. However, it is not without hazards, especially because it may expose the delicate mucosa of the tracheobronchial tree to inexperienced nursing care. Meticulous attention to the technics of tracheobronchial toilet is essential to the satisfactory application of tracheostomy.[3]

The basic respiratory lesion may produce insufficiency by limitation of functioning respiratory mucosa in a variety of ways. While treatment may be necessary before a specific diagnosis is accomplished, it goes without saying that specific treatment must be given in the presence of infection. Plans should be made for the removal, if possible, of space-occupying lesions amenable to surgery, and efforts should be made to relieve compression due to such skeletal abnormalities as funnel breast or kyphoscoliosis. Impaired compliance (volume change per unit of pressure change), or undue "stiffness" of the lung should be relieved, insofar as possible, by positive pressure stretching technics or by training in glossopharyngeal breathing[4]. In emphysema the function of respiratory tissue can often be improved by restoring the ventilatory effect of good diaphragmatic function. This may sometimes be accomplished by an abdominal belt, but pneumoperitoneum is the method of choice. The amount of air used and the frequency of refills must be determined by frequent tests of respiratory function and fluoroscopy. If there are evidences that the application of all these technics fails to provide adequate ventilation and improvement in respiratory function, the

use of an artificial means of breathing should be considered early in the treatment program. The specific indications for respiratory assistance will be discussed.

The circulatory components of respiratory failure are pulmonary hypertension and failure of the right side of the heart.[5] These cardiac manifestations are most effectively treated by relief of respiratory insufficiency, but digitalis is useful because it increases the cardiac output and decreases right ventricular diastolic pressure (as reflected in systemic venous pressure).

The most important criterion for the use of artificial methods of respiration is a disturbance of acid-base balance with persistence of respiratory acidosis. This is reflected in an increase in the partial pressure of carbon dioxide in the alveolar air (P_{ACO_2}) and the arterial blood (P_{aCO_2}). The accumulation of carbon dioxide is evidence of inadequacy of ventilation. It should be clear that excess carbon dioxide can be removed from the alveolar air only by means of increased ventilation. The clinical dilemma which results from this situation has been emphasized by Riley[6] who pointed out that respiratory acidosis of limited degree increases the availability of oxygen through alteration of the dissociation of oxyhemoglobin and thus serves as a compensatory mechanism. However, the muscular metabolism involved in increased breathing effort causes further accumulation of carbon dioxide. Under these circumstances respiratory acidosis may increase to a point at which it cannot be relieved by any compensatory mechanism, no matter how much spontaneous respiration is stimulated. The only way to resolve this dilemma is through relief of the muscular effort of respiration by substituting a mechanical means of ventilation.

Recognition of respiratory acidosis and its physiological implications is essential, yet other phenomena such as dehydration, excess protein catabolism due to inadequate nutrition, loss of electrolytes through sweat and vomitus or diarrhea, also require equally strict attention. Metabolic acidosis must be prevented or reversed and electrolyte balance must be maintained by appropriate laboratory studies and administration of fluid, glucose, and deficient ions. Both respiratory and metabolic changes in acid-base balance cause changes in partitioning of sodium, potassium, and water between cells and extracellular fluid compartments. The correction of these closely interrelated abnormalities is obviously an essential part of treatment.

Choice of Respirator

Returning to the question of artificial respiration, it is re-emphasized that the mechanical respirator has as its principal object the relief of respiratory acidosis and the establishment of a normal partial pressure of oxygen in arterial blood to permit adequate cellular respiration throughout the body and especially in the nervous system. The type of respirator to be used should be determined on physiological grounds, but often has to be based upon availability and experience in the use of special equipment. The tank respirator (iron lung) is probably the simplest and most easily controlled device for the initial phase of treatment. It is possible to adjust pressures in such a fashion as to cause only minimal interference with circulation. Appropriate and measurable tidal air can be easily maintained.[7] There are satisfactory methods of applying aerosolized oxygen or air. Auxiliary positive pressure attachments may be used to synchronize positive pressure breathing with tank respiration or to facilitate nursing care. There are suitable attachments for periodic stretching of the lung and thorax by increasing the negative pressure for a few breath cycles. It is possible to change position and carry out nursing procedures without serious interruption of respiratory assistance. However, the tank respirator is psychologically unacceptable to some patients, particularly to those who are slightly confused and apprehensive, and there are other satisfactory means to accomplish the same results. Positive pressure breathing may be supplied by a variety of technics.[8] There is considerable danger of hyperventilation and respiratory alkalosis from the use of any artificial means of respiration. However,

this difficulty can be avoided and at most represents an insignificant hazard in comparison with respiratory acidosis.

Importance of Persistent and Prolonged Treatment

During the course of treatment of ventilatory, respiratory, and metabolic disturbances attention must also be turned to the psychological status of the patient. Restoration of adequate oxygen supply and relief of acidosis usually result in improvement of mental as well as physical status. However, the possible need for fairly prolonged respiratory assistance must be borne in mind. The effects of hypoxia and hypercapnia are not immediately reversible. In all probability, as in the case of poisoning by external agents such as barbiturates, cellular enzyme systems are depleted and recovery results only when there has been restoration of these fundamental chemical units. Periods of deep unconsciousness and threatened shock lasting several days are not uncommon following severe cardiopulmonary failure, extreme depression of respiration by drugs, or prolonged hypoxia in poliomyelitis or other diseases. This observation leads to a somewhat new concept in management of respiratory insufficiency due to other causes than respiratory muscle paralysis — the *persistent and prolonged* application of respiratory assistive and general care technics. This treatment is given with the hope that relief of the necessity to perform the work of breathing, adequate supply of oxygen, and removal of carbon dioxide may lead to restoration of vital functions. This point is emphasized because of the difficulty in enlisting the cooperative efforts of the medical and nursing staff in the presence of an apparently unfavorable prognosis. Experience with patients* in severe respiratory failure has shown that prognosis cannot be estimated from the course of the first few days' treatment, although gradual evidence of amelioration is usually observed if the therapeutic plan is well conceived.

Gradual Withdrawal of Respiratory Assistance

Another principle of care which is not obvious in most discussions of this subject is the necessity for gradual withdrawal of respiratory assistance. The general attitude toward the use of resuscitative or respiratory assistive equipment is based upon emergency care rather than rehabilitative or prolonged treatment. Since breathing is an automatic function which is generally expected of the living organism, the mere restoration of voluntary function is usually construed as evidence that assistive breathing is no longer necessary. There is a strong tendency, therefore, to remove the patient from respiratory devices as soon as possible without due consideration of blood-gas relationships, metabolic balance, or extent of recovery of function. This often leads to a prompt exacerbation of symptoms and a return to the dilemma of respiratory acidosis associated with the need for increased ventilation. It is therefore urged that respiratory assistance be diminished gradually. It is better to err in the direction of over-assistance rather than under-assistance. This is particularly true since other methods of treatment should be instituted as soon as the immediate respiratory and mental problems have been somewhat resolved.

At the point when voluntary respiration is adequate to prevent respiratory acidosis the addition of even a mild exercise program may destroy the balance which has been achieved. Failure to start a regular graduated exercise program, in turn, may lead to serious disuse effects which will complicate the clinical situation. Therefore, the same technic which was applied to meet the demands of work of breathing should be used to meet the demands of work of exercise.[9] The patient should be provided with auxiliary means of respiration such as a positive pressure breathing device supplying air via the tracheostomy opening or the mouth, to be used during the course of physical therapy, gait training, stair climbing, and other exercises. An alternate method is the use of a chest cuirass attached to a portable respirator pump. The hose connections of both these devices permit considerable latitude of motion and favor an activity program.

*Case reports will be included in reprints of this study.

Discharge Planning

When the patient is restored to a satisfactory level of mental function and enough physical activity to counteract disuse effects and improve strength, planning for discharge and for vocational rehabilitation should be undertaken. This involves the cooperative efforts of staff social workers, vocational counselors, and, to a variable degree, psychological consultants. The rate of convalescence and recovery from pulmonary insufficiency varies with the nature of the underlying disease process. At times surgical removal of space-occupying lesions such as emphysematous blebs or pulmonary cysts may be undertaken only after long periods of preparation. On the other hand, patients may make very rapid recoveries and return to fairly normal activities with minimal need for further treatment.

In discharge planning, serious consideration should be given to the treatment of infections by biological means such as appropriate vaccines as well as by antimicrobials, to desensitization for allergic disturbances causing bronchospasm, and also to the possible use of various kinds of respiratory assistive devices for long periods of time, possibly for life. It is obviously good practice to provide a patient with a respiratory assistive mechanism which he may use for adequate breathing during sleep in order to permit him to continue his normal daily activity and to prevent recurrence of respiratory insufficiency. The use of a rocking bed at night, for example, may completely alter the prognosis in patients with diseases which permanently limit respiratory function. Continued pneumoperitoneum may also prove an effective therapeutic aid in selected cases.

The withdrawal of respiratory assistance should be gradual and its rate should be determined, insofar as possible, by objective means. In this connection the frequent determination of end-tidal carbon dioxide concentration has proved invaluable. The technic involves specialized equipment but its usefulness is such as to warrant wide application in the treatment of respiratory disorders.[10]

In general, the patient who has been on full respiratory assistance should at first be allowed brief periods of breathing on his own, much as in the case of respiratory paralytics with poliomyelitis. However, the rate of withdrawal is usually more rapid once there has been improvement in respiratory status as well as general metabolic readjustment. Frequently it is possible to achieve complete withdrawal from respiratory assistance within a few days, at which time a decision must be made as to the need for periodic or regular use of positive pressure breathing equipment, the rocking bed, or other assistive devices.

Summary

Greatly expanded knowledge of the physiology and biochemistry of respiration, together with the technical skills developed in the care and rehabilitation of patients with respiratory paralysis due to poliomyelitis, now make it possible to apply an effective method of total care for the treatment of patients with severe respiratory insufficiency due to a great variety of causes.

The fundamental principles are essentially the same in the treatment of all disorders in which there is inadequate pulmonary ventilation associated with respiratory acidosis, disturbed metabolism, right-sided heart strain or failure and accompanying psychobiological changes.

The first essential is adequate respiratory assistance to relieve the patient of the work of breathing and to correct respiratory acidosis. This may require tracheostomy, artificial respiration for varying periods of time, then gradual reduction in respiratory assistance, a graduated exercise and strengthening program and the whole gamut of services included in the concept of rehabilitation.

While this regimen of management does not include any new methods or concepts, it does involve the coordinated application of technics which are usually utilized as separate treatment procedures or as brief supportive measures without adequate understanding of the needs for full restitution of function. When the available technics are applied in a well-coordinated manner, the prognosis for recovery can be very remarkably changed

for the better in seemingly hopeless situations.

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Meeting of the

EASTERN SECTION OF THE CONGRESS

Will Be Held On April 19, 1958

NATIONAL INSTITUTES OF HEALTH

Washington, D. C.

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1801 Eye Street, N. W.

Washington 6, D. C.

An Analysis of Residual Disabilities (Paralysis and Crippling) Among 100,000 Poliomyelitis Patients: With Special Reference to the Rehabilitation of Postpoliomyelitis Patients

Kenneth S. Landauer, M.D.
and
Gabriel Stickle, M.A.
New York City

• An analysis of residual disabilities among poliomyelitis patients has value for many reasons. An important one is to help determine the size and composition of the caseload of poliomyelitis patients who might benefit by further active rehabilitation procedures. The present analysis is based upon compilation and tabulation of data obtained from a series of patient-care reporting forms used by hospitals to notify chapters of The National Foundation for Infantile Paralysis, Inc., of the admission, continued care and discharge of poliomyelitis patients. More than 1500 hospitals have submitted more than 1,000,000 forms since the inception of a reporting system in 1952. Detailed case histories are available for slightly more than 100,000 hospitalized poliomyelitis patients. The reporting forms call for information on the area and degree of paralysis, as well as functional capacity, as reported by the attending physician, for each patient. It was therefore possible to make cross-classifications of disabilities, graded as none, slight, moderate or severe, in eight body areas; namely, left and right arms, left and right legs, intercostal muscles, diaphragm, abdominal muscles and trunk extensors. On the basis of a scoring system which combines degrees of disability for these specific areas of the body, it is possible to estimate percentages and numbers of paralytic patients with no, slight, moderate and severe residual disability. When these estimates are compared with reported functional capacity — ability to stand, walk, feed, toilet self, etc., — they match closely.

More than 300,000 people alive today in the United States have had paralytic poliomyelitis. Well over half of these were stricken in the last decade (1947-56). An estimated 90 per cent of these recent postpoliomyelitis patients either already discharged from or still in hospitals at last report were slightly, moderately, or severely crippled.

With the incidence of paralytic poliomyelitis reduced by wide-spread poliomyelitis vaccine programs, the National Foundation for Infantile Paralysis at last is in a position to intensify its patient care program, on which over a quarter of a billion dollars has been spent since 1938. The National Foundation can now look forward toward the further rehabilitation needs of thousands of patients for whom the Salk vaccine "came too late." No one yet knows the precise size and composition of the caseload of postpoliomyelitis patients who can now genuinely profit by application of modern rehabilitation technics. The present analysis is a step toward the solution of this problem.

Favorable Experience at 16 Respiratory and Rehabilitation Centers[1]

This newly intensified program has been prompted in part by experience at 16 respiratory and rehabilitation centers established in the United States since 1950 under the sponsorship and with financial help of the National Foundation. These centers are located at medical schools and teaching hospitals. They have demonstrated that full-scale rehabilitation, or "total medical care," by teams composed of all needed medical specialties and paramedical skills, not only works but pays.

The centers have of necessity and by design undertaken to treat some of the most hopelessly disabled patients known to medicine, those with respiratory paralysis and quadriplegia. They have succeeded both in saving the lives of such patients, and then making those lives worth living.

Each center freely carries forward its own threefold program of research, teaching, and service. While the total bed capacity of all centers combined is less than 500, nevertheless, over 4,200 patients have been admitted. Over 90 per cent have been discharged to their homes, following an average stay of seven months for respirator patients and a little over seven weeks for those without respiratory involvement.

Through research, these centers have sought to provide continually improving care and rehabilitation services to severely damaged victims of paralytic poliomyelitis. Astonishingly encouraging

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Director of Respiratory and Rehabilitation Center Services, The National Foundation for Infantile Paralysis, Inc.

Director of Statistical Services, The National Foundation for Infantile Paralysis, Inc.

results have been obtained not only in physical rehabilitation but also in psychological, social, vocational, and economic rehabilitation.

The operation of these centers has also saved society millions of dollars which would have been needlessly wasted in the indefinitely prolonged hospitalization of thousands of severely crippled patients, doubly imprisoned in tank respirators and hospitals. The centers have demonstrated that the best care is the cheapest.

The success of the respiratory and rehabilitation centers can be taken as a token and promise of how much more can yet be done for thousands of postpoliomyelitis patients less severely disabled than those generally admitted to the centers.

We have taken one preliminary approach to determining the rehabilitation needs of postpoliomyelitis patients in the United States by an analysis of residual disability, paralysis, and crippling, among more than 100,000 patients, hospitalized for poliomyelitis, for whom detailed case histories are available in the statistical records of the National Foundation for Infantile Paralysis. This study, however, does not give us any final answers to our major problem.

Basic Sources of Data

The present analysis is based upon compilation and tabulation of data obtained from a series of patient-care reporting forms used by hospitals to notify chapters of the National Foundation of the admission, continued care, and discharge of poliomyelitis patients. More than 1,500 hospitals have submitted more than 1,000,000 forms since the inception of a reporting system in 1952 (fig. 1.).

The reporting forms call for information on the area and degree of paralysis, as well as functional capacity, as reported by the attending physician, for each patient. It was therefore possible to make cross-classifications on disabilities, graded as none, slight, moderate or severe, in eight body areas: namely, left and right arms, left and right legs, intercostal muscles, diaphragm, abdominal muscles, and trunk extensors.

The total study population in the present analysis includes 102,184 patients hospitalized for poliomyelitis in the United States between July, 1952 and December, 1956 for whom notices of discharge and/or continued care were received. Of this total number, however, approximately 2.5 per cent died; 9 per cent were finally diagnosed as "not polio" or "doubtful polio;" 24 per cent were diagnosed as "nonparalytic, abortive, or unspecified polio;" and 2 per cent had to be excluded from analysis because report forms were incomplete. It was possible, however, to analyze 64,146 cases of paralytic poliomyelitis for residual disability or crippling in terms of the anatomic site or sites, most frequently multiple, affected. It was also possible to analyze for functional disabilities, or conversely, for remaining self-care capacity the records of 42,983 paralytic poliomyelitis patients aged 3 and over (table 1).

Anatomic Sites of Residual Disability

Most frequently paralytic poliomyelitis results in some paralysis of both legs (45 per cent of the cases), often in severe paralysis of both legs (16 per cent) or both arms (6 per cent), and sometimes in complete quadriplegia (2.5 per cent) or "total paralysis" (1.5 per cent). Legs are far more often involved than arms (table 2). From these data and other studies, it is estimated that some degree of respiratory paralysis occurs in approximately 15 per cent of paralytic cases.

When all of a possible 65,000 combinations of paralysis by anatomic site were analyzed on a mutually exclusive basis, 17.4 per cent of the patients were found to have severe paralysis of all eight body areas or at least of both arms and both legs.

Point-Count Scoring of Degree of Involvement

The outcome of paralytic poliomyelitis as recorded in anatomic sites and degrees of paralysis at the time of hospital dis-

NOTICE OF DISCHARGE OR DEATH OF POLIOMYELITIS PATIENT

TO BE COMPLETED BY HOSPITAL OR OTHER AGENCY UPON DISCHARGE OR DEATH OF POLIOMYELITIS PATIENT.

(INFORMATION FOR RESEARCH AND ADMINISTRATIVE PURPOSES)

ENTER BELOW NAME AND ADDRESS OF HOSPITAL OR OTHER AGENCY RENDERING THIS SERVICE

TO THE (COUNTY) (STATE) CHAPTER OF THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

PATIENT'S NAME (LAST) (FIRST) (MIDDLE) SEX COLOR

PATIENT'S HOME ADDRESS (NUMBER AND STREET) HOSPITAL CASE NUMBER, IF ANY

(CITY OR TOWN) (COUNTY) (STATE)

ENTER DATE OF — MONTH — DAY — YEAR

PATIENT'S BIRTH ....
ONSET OF POLIO ....
THIS ADMISSION .....
THIS DISCHARGE ....

TYPE OF DISCHARGE (CHECK IN EITHER 1, 2 OR 3, BELOW)

(1) ☐ NEEDS NO FURTHER TREATMENT
(2) ☐ DEATH (IF CHECKED, DISREGARD ALL ITEMS BELOW EXCEPT THE THREE PRECEDED BY 4)
(3) NEEDS FURTHER TREATMENT AND REFERRED TO
☐ OTHER INSTITUTION ☐ OFFICE CARE
☐ OUT-PATIENT CLINIC ☐ HOME CARE

DOES PATIENT NEED FURTHER CARE? ☐ YES ☐ NO

IF "YES" CHECK TYPE BELOW

☐ CONVALESCENT NURSING
☐ PHYSICAL THERAPY
☐ OCCUPATIONAL THERAPY
☐ INTENSIVE REHABILITATION SERVICES
☐ ORTHOPEDIC SURGERY
☐ PERIODIC OBSERVATION
☐ OTHER (SPECIFY)

AGENCY OR PHYSICIAN TO WHOM TRANSFERRED FOR FOLLOW-UP, IF ANY.

NAME

ADDRESS

FINAL DIAGNOSIS (CHECK IN EITHER 1, 2, 3 OR 4, BELOW)

(1) PARALYTIC POLIO ☐ SPINAL ☐ BULBAR ☐ SPINO-BULBAR
(2) ☐ NONPARALYTIC POLIO
(3) ☐ ABORTIVE POLIO
(4) ☐ NOT POLIO (SPECIFY DISEASE)

DID PATIENT USE RESPIRATORY AIDS DURING THIS PERIOD OF TREATMENT? ☐ YES ☐ NO

AVERAGE NUMBER OF HOURS DAILY PATIENT NOW SPENDS IN RESPIRATORY AIDS.

TANK RESPIRATOR ROCKING BED

CHEST RESPIRATOR

TOTAL

PLEASE USE TYPEWRITER OR PRINT WITH BALL-POINT PEN. FILL IN ALL SPACES WHICH ARE APPLICABLE AND PLEASE FORWARD COPIES AS SOON AS POSSIBLE.

PARENT OR LEGAL GUARDIAN OF MINOR PATIENT

NAME

ADDRESS

AREA AND DEGREE OF RESIDUAL CRIPPLING

	NONE	SLIGHT	SUPPORTS	BRACES
LEFT ARM	☐	☐	☐	☐
RIGHT ARM	☐	☐	☐	☐
LEFT LEG	☐	☐	☐	☐
RIGHT LEG	☐	☐	☐	☐
INTERCOSTAL MUSCLES	☐	☐	☐	☐
DIAPHRAGM	☐	☐	☐	☐
TRUNK EXTENSORS	☐	☐	☐	☐
ABDOMINAL MUSCLES	☐	☐	☐	☐

ARE CRANIAL NERVES INVOLVED? ☐ YES ☐ NO

PATIENT (INDICATE WHICH):

☐ CONFINED TO BED
☐ CAN USE WHEELCHAIR
☐ CAN STAND
CAN WALK WITH AID OF:
☐ BRACE(S) ☐ CRUTCH(ES) ☐ CORSET ☐ CANE(S)
☐ CAN WALK UNAIDED
☐ CAN CLIMB STAIRS
☐ CAN USE PUBLIC TRANSPORTATION
SELF-CARE:
☐ FEEDING ☐ DRESSING ☐ TOILET

ARE ORTHOPEDIC APPLIANCES USED? ☐ YES ☐ NO

IF ATTENDING SCHOOL AT TIME OF ONSET,

CAN PATIENT RESUME SCHOOLING? ☐ YES ☐ NO

IF "YES", CAN SCHOOLING BE RESUMED
☐ IN REGULAR CLASS?
☐ IN SPECIAL CLASS?
☐ AT HOME ONLY?

IS VOCATIONAL REHABILITATION

	YES	NO
INDICATED?	☐	☐
AVAILABLE?	☐	☐
ARRANGED FOR?	☐	☐

(SIGNATURE OF PHYSICIAN MAKING MEDICAL STATEMENT)

IF THIS PATIENT'S NAME HAS BEEN CHANGED SINCE ANY PREVIOUS NOTICE WAS SUBMITTED, PLEASE ENTER PREVIOUS NAME IN PARENTHESES ABOVE PATIENT'S PRESENT NAME.

COPY 1 TO BE RETAINED BY HOSPITAL OR OTHER AGENCY RENDERING SERVICE.

Fig. 1 — Sample report form submitted by hospitals to National Foundation for Infantile Paralysis.

Table 1: Summary of Diagnostic Pattern among 102,184 Patients Reported Hospitalized for Poliomyelitis in U. S., July, 1952 - December, 1956*

		Number	Per Cent
Total hospitalized patients reported (1952-1956)		102,184	100.0
Analysis excludes			
Deaths	2,425		2.4
Diagnosed "not polio" or unspecified	9,410		9.2
Diagnosed nonparalytic, abortive, or "unspecified polio"	24,373		23.8
Disability unspecified on report form	1,830		1.8
		—38,038	—37.2
Paralytic poliomyelitis cases analyzed for residual disability by anatomic site(s) affected		64,146	62.8
Paralytic poliomyelitis patients, aged 3 and over, analyzed for functional disabilities (self-care capacities)		42,983	

*Includes all patients for whom about 1,500 U. S. hospitals submitted notice of discharge and/or notice of continued care to the National Foundation for Infantile Paralysis.

charge (or last report) can be measured crudely on the basis of aggregate involvement score. With each of 8 anatomic areas subject to scores of 0 for no paralysis, 1 for slight paralysis, 2 for moderate paralysis, and 3 for severe paralysis, the aggregate involvement score for all 8 areas ranges from 0 to 24. Table 3 and figure 2 present a distribution of the 64,146 cases according to aggregate disability score.

Slightly more than 10 per cent of these cases had no paralytic involvement at last report; nearly half had a score of less than 4; 75 per cent had a score of less than 8; and 90 per cent had a score of less than 14. A score of 24, representing severe paralysis of all 8 areas, was reported in 1.5 per cent of the cases. Patients most frequently had a score of 2 or 3.

This approach, while indicating crudely the relative number of patients with low, moderate, and high scores, is not sufficient as a technic for estimating the proportions with slight, moderate, and severe disability, because it does not take into account the anatomic dispersion of paralysis, that is, it equates a right-arm score of 3 alone with scores of 1 for the left leg, 1 for the right leg, and 1 for the trunk extensors.

Table 2: Analysis of Body Areas Showing Residual Paralysis at Time of Hospital Discharge Among 64,146 Patients*

	Number	Per Cent
Severe paralysis of		
8 Body areas ("totally paralyzed")	983	1.5
Both arms and both legs	1,605	2.5
Both arms	3,749	5.8
Both legs	9,990	15.6
Some paralysis of		
One arm	10,233	16.0
Both arms	14,662	22.9
One leg	18,578	29.0
Both legs	29,067	45.3
Respiratory paralysis (estimated)		
Patients with history of use of respiratory aids	9,600	15.0

*Percentages do not add up to 100 because many patients have different combinations of paralytic involvement.

Classification of Degrees of Severity

As a result of these observations and others with regard to respiratory paralysis, it was apparent that no precise criteria could be developed for a classification of paralytic poliomyelitis patients according to the over-all severity of their involvement. Proceeding arbitrarily, therefore, but in recognition of the preceding analysis, the following tentative criteria for classification were developed.

Severe Disability:

1. An aggregate disability score of 12 or more; or
2. A combined arm score of 5 or more; or
3. A combined leg score of 6; or
4. A combined arm score of 4 and
   (*a*) A combined leg score of 2 or more, or
   (*b*) A score of 2 or more for either the intercostals, diaphragm, abdominals or trunk; or
5. A combined leg score of 5 and
   (*a*) A combined arm score of 2 or more, or
   (*b*) A score of 2 or more for either the intercostals, diaphragm, abdominals or trunk; or

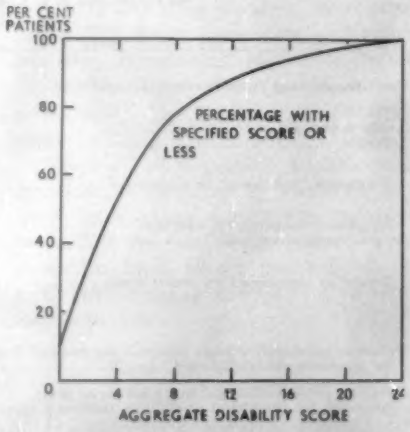

Fig. 2—Cumulative percentage distribution of paralytic poliomyelitis patients according to aggregate disability score (see table 3).

Table 3: Distribution of Paralytic Poliomyelitis Patients According to Degree of Paralytic Involvement at Time of Latest In-Patient Report, July, 1952 - December, 1956

Disability Score*	Total Patients		Percentage Distribution	
	Number	Cumulative Number	Per Cent	Cumulative Per Cent
Total, all patients	64,146	—	100.0	—
0	6,539	6,539	10.2	10.2
1	5,780	12,319	9.0	19.2
2	10,566	22,885	16.4	35.7
3	8,693	31,578	13.5	49.2
4	5,769	37,347	9.0	58.2
5	3,682	41,029	5.7	64.0
6	4,790	45,819	7.5	71.4
7	2,171	47,990	3.4	74.8
8	2,480	50,470	3.9	78.7
9	1,989	52,459	3.1	81.8
10	1,846	54,305	2.9	84.7
11	1,182	55,487	1.8	86.5
12	1,646	57,133	2.6	89.1
13	825	57,958	1.3	90.4
14	934	58,892	1.5	91.8
15	722	59,614	1.1	92.9
16	820	60,434	1.3	94.2
17	481	60,915	0.7	95.0
18	830	61,745	1.3	96.3
19	294	62,039	0.5	96.7
20	381	62,420	0.6	97.3
21	276	62,696	0.4	97.7
22	306	63,002	0.5	98.2
23	161	63,163	0.3	98.5
24	983	64,146	1.5	100.0

*Aggregate of scores for each anatomic area (left arm, right arm, left leg, right leg, intercostal muscles, diaphragm, trunk extensors, and abdominal muscles) as indicated by degree of paralysis assigned by attending physician (0 for none, 1 for slight, 2 for moderate, and 3 for severe).

6. A combined intercostal-diaphragm, intercostal-abdominal or diaphragm-abdominal score of 5 or more, or
7. A combined trunk-abdominal, diaphragm-trunk or intercostal-trunk score of 6.

Slight Disability: An aggregate disability score of 1, 2 or 3, the latter score not involving a single anatomical area.

No Disability: An aggregate disability score of zero.

Moderate Disability: All others.

On the basis of these criteria, we find that 10 per cent of the cases showed no evident disability; 23 per cent slight residual disability; 41 per cent, moderate paralysis; and 26 per cent severe crippling (table 4).

Functional Capacity

Of 43,000 patients at time of discharge, about 14 per cent were confined to bed; 7 per cent could move about only in a wheelchair; 3 per cent could only stand up. The remaining three-quarters of these patients were able to walk — 43 per cent unaided; 33 per cent only with braces, crutches, and other appliances (table 5).

Most hopeful, from the standpoint of rehabilitation, is the fact that 80 per cent of those discharged from the hospital could still feed, dress, and toilet themselves. Presumably, they also retained other functional abilities and were able to take care of most other essential "activities of daily living." Of those reported needing further bed care, 24 per cent could still feed, dress, and toilet themselves. (Many of these undoubtedly could progress to wheelchair or ambulation.) Also able to feed, dress, and toilet were about 33 per cent of those using wheelchairs, 63 per cent of those who could stand only, 82 per cent of those who could walk with assistive devices, and 93 per cent of those who walked unaided (table 6).

Table 4: Residual Disability (Paralysis) Recorded by Anatomic Site(s) among 64,146 Patients at Time of Hospital Discharge

	Per Cent
No disability	10.2
Slight disability	22.4
Moderate disability	41.1
Severe disability	26.3

Table 5: Functional Disability at Time of Hospital Discharge among 42,983 Patients Aged 3 and Over

	Per Cent
Confined to bed	13.6
Can use wheelchair only	6.7
Can stand only	3.5
	23.8%
Can walk with aids [brace(s), crutch(es), cane(s), corset]	33.1
Can walk unaided	43.2
	76.3%

Table 6: Functional Abilities (Self-care Capacities) Remaining at Time of Hospital Discharge among 42,983 Patients, Aged 3 and Over

Of Patients Who:	Per Cent Who Can Still Feed, Dress, and Toilet Themselves
Are confined to bed	24.4
Can use wheelchair only	32.9
Can stand only	62.7
Can walk with aids	81.7
Can walk unaided	92.6
Total, all patients	80.5

Table 7: Number of Poliomyelitis Cases Reported in the United States, 1915-1956*

Years	Total Number of Cases Reported	Per Cent of Total
1915-29	84,769	14.8
1930-37	66,341	11.6
1938†-46	102,906	18.0
1947-51	142,272	24.8
1952-56	176,330	30.8
Total	572,618	100.0

*U. S. Public Health Service.
†National Foundation for Infantile Paralysis founded.

Number of Postpoliomyelitis Patients Now Living

We can now begin to estimate, within the limits of the accuracy of the original data, the number of postpoliomyelitis patients now living in the United States. Since 1915, when a multistate reporting system was first instituted, through 1956, the U. S. Public Health Service reported a total of 572,618 cases of poliomyelitis, paralytic and nonparalytic.[2] So far this year, 5,514 new cases of poliomyelitis have been reported. Over half (56 per cent) of all reported cases have occurred in the past decade (1947 through 1956), a total of about 319,000 cases (table 7).

Number of Postpoliomyelitis Patients Who Can Be Rehabilitated

We now return to our fundamental question: How many postpoliomyelitis patients are possible candidates for rehabilitation? The present study provides only preliminary data for such an estimate. We can reasonably calculate the number of paralytic poliomyelitis patients stricken in the last decade and the pattern of their paralytic involvement.

Of the total of 319,000 cases reported in this decade, 26 per cent were nonparalytic and, in the light of present knowledge, another 10 per cent were probably not poliomyelitis. Eliminating these and 16,000 deaths from poliomyelitis, we may estimate that about 190,000 paralytic poliomyelitis patients of the past decade still survive. Over half of these were stricken in the last five years, since 1952.

Let us apply the percentage distribution of residual disabilities as determined in this study (table 4) to these 190,000 cases. We can then estimate that of these, 19,000 had no evident residual disability, 43,000 had slight muscle weakness, 78,000 had moderate paralytic involvement, and 50,000 were severely crippled (table 8).

Discussion

It is not considered feasible to apply the results of this study of disability patterns to patients stricken with poliomyelitis before 1947. Only within recent years, for example, has official morbidity reporting distinguished between paralytic and nonparalytic cases — even this is not yet universal. Furthermore, until quite recently, relatively few of the most severely paralyzed patients survived the disease. Taking account of these, and

Table 8: Estimated Number of Paralytic Poliomyelitis Patients in the U. S. Stricken Since 1947 and Their Disability Status at Last Report*

Paralytic Status	Number	Per Cent†
No residual crippling	19,000	10.2
Slight muscle involvement ...	43,000	22.4
Moderate residual paralytic involvement	78,000	41.1
Severe residual paralysis	50,000	26.3
Total cases	190,000	100.0

*Deaths, "not polio" diagnoses, and nonparalytic cases eliminated.
†From table 4.

perhaps other qualifications, we can estimate, however, that there are still living in the United States nearly 150,000 people who have survived attacks of paralytic poliomyelitis occurring before 1947.

Including the 190,000 with onset since 1947, we can estimate that there are between 300,000 and 350,000 people in the United States who have had paralytic poliomyelitis. It seems reasonable to assume that a significant percentage of these poliomyelitis-crippled have not yet had the opportunity to receive the advanced and comprehensive services available in today's rehabilitation programs.

The only way to reach a definitive and statistically reliable quantitative answer to questions about the rehabilitation needs of postpoliomyelitis patients is by further research. This would involve an evaluation of a nation-wide random sample of postpoliomyelitis patients by teams of experts competent to judge rehabilitation potentials. Such a study would provide a basis for more realistic planning of programs to meet the rehabilitation needs of postpoliomyelitis patients.

Summary and Conclusion

An analysis of residual disabilities, paralysis, and crippling among 102,184 patients hospitalized for poliomyelitis in the United States from 1952 through 1956 indicates the outcome of paralytic poliomyelitis in terms of anatomic sites affected, degrees of crippling sustained, functional abilities lost, and self-care capacities retained.

More than 300,000 people alive today in the United States have had paralytic poliomyelitis, of whom more than half were attacked in the last decade. An estimated 90 per cent of these recent postpoliomyelitis patients were reported by their physicians as severely, moderately, or slightly crippled at last notification. How many of these patients are now possible candidates for rehabilitation is a question that we hope will soon be answered definitely through further research study.

Experience in 16 respiratory and rehabilitation centers demonstrates that today's "hopeless" need not remain helpless, for through such integrated programs of research, care, teaching, and training comes the promise of help for even the most severely disabled.

Acknowledgment: The authors are grateful to Justus J. Schifferes, Ph.D., Medical Editor of the National Foundation for Infantile Paralysis for his editorial assistance in the preparation of this paper.

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Morale and Productivity in a Sheltered Workshop for the Severely Disabled

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● This report considers workshop climate, work habits, and personal interactions in a research sheltered shop for severely disabled, hospitalized patients before and after introduction of light subcontracting. Before subcontracting was initiated, production emphasis was given solely to handicraft projects. Introduction of subcontracts was accompanied by three changes in conditions of work. Possible connections between these changes and increases of morale and productivity are discussed.

Factors in the work environment that may influence the morale and productivity of nonhandicapped workers have been explored in a variety of industrial and commercial situations.[1] Unfortunately, a comparable literature on the disabled worker in sheltered employment does not exist. The growing acceptance of protected work facilities, both as direct sources of remunerative activity and as media for increasing employability for community placement, points out that such investigations would now serve a highly useful purpose.

The account that follows is not intended as a prescription for the function or structure of sheltered workshops, but is offered simply as a preliminary step in the formulation of detailed research studies which, it is hoped, will eventually serve to make sheltered employment an even more constructive rehabilitation experience for handicapped persons who seem able to benefit from it.

This report describes certain alterations in sheltered shop climate, job performance, and social interaction that occurred after light subcontracting was introduced into a quasi-vocational milieu that had formerly operated on the basis of handicraft projects exclusively. Both Nadler[2] and myself[3] have commented on this situation; Nadler's paper is especially relevant to shop atmosphere and organization before subcontracting. Similar analyses are presented by Barker and his associates[4] and in an Office of Vocational Rehabilitation monograph.[5]

Within this descriptive framework an attempt will be made to trace possible associations between the changes and work productivity and morale. Causal relationships underlying these developments are doubtless complex; a full analysis would require careful attention to events that took place in the hospital where workers lived, as well as within the shop itself. Inasmuch as it was not possible to observe, record or control this aspect of the total setting to an appreciable degree, these developments are considered only in terms of the conditions of work in the sheltered shop.

Observations were conducted during 1956 in the Highland Shop, a nonprofit research sheltered shop for in-living patients with chronic physical disabilities at Highland View Hospital, Cleveland, Ohio. The Highland Shop was officially opened in January, 1956, but light subcontracting was not actively inaugurated until June of that year, making possible "before and after" observation periods of about six months each. According to available evidence, the client population remained basically homogeneous during that time.[6]

Sheltered Shop Before Light Subcontracting

Hospital patients were screened for the Highland Shop at a regularly scheduled admissions conference in which the rehabilitation services were represented. Acceptability at the admissions conference, however, meant only that prospective clients would be contacted on an intake basis by one of the shop's vocational counselors. No client was ever compelled to come if he strongly objected to doing so.

It was true, however, that felt pressures attributed to medical and ward personnel were often cited by clients as their chief reason for attending. For others, force of habit developed as the outcome of long participation in the hospital recreational program seemed to

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be the primary motivation for their presence in the sheltered shop. Only infrequently did clients declare that they were hoping for or seeking vocational gains from the sheltered shop program.

Accordingly, there was little disposition to regard the sheltered shop as a place of work and a general apathy toward daily assignments was often remarked. Attendance tended to be sporadic and the slightest pretext served to interrupt or terminate work. There were periodic spells of grumbling about having to attend, the kind of jobs available, and the exceedingly nominal pay that the shop was able to offer its workers.

In and out of the workshop most of these people appeared to live solitary, self-preoccupied existences, centered largely on their physical condition or medical treatment. Despite the fact that workers were often in close physical proximity for five or six hours of each weekday, there was little evidence of a sense of common purpose or positive group spirit. Social contacts observed in the shop were noted for their infrequency and superficiality.

Clients were assigned to work on part-processes in the production of assorted handicraft items which were sold in the hospital and through several nearby stores. These products included cricket stools, cheese boards, clothes racks, doll cradles, rag rugs, woven place mats, and similar objects. This activity bore so striking a resemblance to the media of occupational therapy and the diversional program in the hospital that many clients couched their initial reactions to the workshop in terms most appropriate to medical treatment programs or leisure-time avocations. More than three quarters of the workers were able to perform only one or two steps of the total operation in each project, such as stripping or plaiting rags, weaving, cutting out parts, sanding, glueing, nailing, or painting.

Nearly all clients had spots where they preferred to work; however, this bore no definable relation to the type of job done, the sequence of production for any given item, or feelings of special kinship or amiability for those located nearby. Problems in supervision and production developed because people doing related jobs were sometimes scattered about in almost accidental fashion. Thus, a person cutting out wooden doll cradle parts might be located in one room, the sander in another, assembling done by a different worker in the first room, and the painting carried on elsewhere, perhaps by still another client. Supervisors often had to invest generously of time and effort to carry the work from one location to the next, instead of devoting themselves to supervisory duties; production moved along at an irregular, even unpredictable pace.

Rate of work output was geared in broad fashion to explicit consumer demand except at holiday seasons when some stockpiling was done. As a result, while clients were expected to be present in the shop for a full workday, there were not infrequently periods of partial employment during which the main body of the working staff sat idle or had to return to the wards.

Three characteristics of the handicraft-oriented work setting posed especially vexing problems:

1. Fluctuation of Production Rates and Schedules. Production rates and schedules fluctuated widely with the unpredictability of market demand for these products, leading to a state of chronic uncertainty that made it difficult to generate a sense of job stability and identification of the shop as a distinct place of work. It also created hardships in establishing definite production plans and uniform wage scales. Resemblance of work tasks to the projects of occupational therapy and recreation undoubtedly reinforced these negative factors and acted against the emergence of the workshop as an entity apart from medically geared hospital departments.

2. Skill Requirements Too High. The production of saleable handicrafts called for a combination of skills, initiative, versatility, and work tolerance that the majority of these clients could not meet. Many aspects of handicraft production place a premium on these qualities. Since only a few workers in the shop were able to meet such standards, a radically uneven distribution of involvement, effort, and productivity resulted

among clients at different capacity levels.

3. Lack of Social Contact. Handicrafts as practiced in the sheltered shop failed to combat feelings of social isolation and self-devaluation that many clients were known to have experienced in the hospital. Far from providing a tangible medium for cooperative, interdependent relationships and opportunities for concrete achievement, handicraft work tended to segregate workers still more sharply on the basis of residual skills and stamina. A process of natural selection, as it were, tended to limit possibilities for participation and accomplishment to a relatively small number of people, since the production of marketable items made it an economic necessity to tailor the work situation to the needs of the most efficient workers. Under these conditions it was not surprising that the majority of workers failed to develop an "esprit de corps" or a sense of "belonging to" the sheltered shop.

Responsibility for sustained production, then, actually fell upon the shoulders of a handful of workers, the remainder sharing on a peripheral basis. In consequence, morale and productivity were good among the shop's "elite," but low among the "proletariat" — by far the larger number. The latter group, often more badly impaired physically and psychologically, reacted with anxiety in the face of pressures it could not sustain, and attempted to withdraw from the situation as much as possible. Lower caliber personnel tended to adopt attitudes of grudging acquiescence toward performing their duties, as shown by the erratic nature of their work output both as to quality and quantity. Prolonged coffee breaks, frequent trips to the bathroom, and long spells of somnolence at the work tables attested to their aversion for or disinterest in the work before them.

Sheltered Workshop After Light Subcontracting

The strongly negative qualities of handicraft-centered operations led to investigation of light subcontracting. This medium appeared to offer several noteworthy advantages, principal among these being that its incorporation might facilitate changes in the sheltered shop that would increase morale and productivity in the quite large group of marginal workers whose role in this shop was of small value both to themselves and to the workshop as a whole. After intensive recruiting, several subcontracts were procured which included counting, sorting, and packaging of small metal and plastic parts, one-, two-, and three-step industrial assemblies, packaging hobbycraft kits, and several woodworking projects such as exterminator boxes and miniature farm gates.[7, 8] Special emphasis was given to simplifying and reorganizing production so that more work could be assigned to people at the lower skill levels, and instructional supervision was intensified. Jigs and other adaptations were devised to counteract the effects of individual disabilities, and work areas were reorganized so as to promote "one-way" movement of each project toward visible, concrete production goals.

The specific changes that accompanied the introduction of subcontract work appeared to be as follows:

1. Improvement in Attendance and Punctuality. A regular, stable, work-day was established with consistent standards of attendance and punctuality. While the character of handicraft activity formerly made it a near impossibility to maintain uniform conditions of work, this became imperative with subcontracting. Interpretation of the change was handled with clients both individually and on a group basis. The actual flow of work which came from outside the hospital was unmistakable evidence of the necessity for standards. Finally, the introduction of a time clock system concreted the shift to an industrial-type work setting. Development of a uniform wage scale occurred at about the same time. Although not directly related to subcontracting needs, it did tend to add to the over-all effect of providing a business-like context for shop activities.

Reactions varied among individual clients; some initial resistance to change rapidly dwindled, and total response seemed to be highly favorable. Attendance became more regular, and gradually a number of people not previously distinguished for punctuality or depend-

ability were observed to arrive on time, showed a willingness to work a full day, and took fewer unauthorized breaks.

2. Improvement in Job Performance. Subcontracts were set up on an assembly-line plan, workers being systematically grouped according to likeness of capacity and relatedness of job assignments.

Experience in handicraft production had suggested that efficiency in low-capacity clients could be augmented by relocating workers so that work moved along on an assembly line basis, since this minimized demands on individual clients to the point at which they could be comfortable and successful with their assignments. Hence, persons doing the same or closely related jobs were situated near each other, and clients working in proximity tended to be individuals at roughly the same functioning ability level. A dramatic example can be cited to illustrate the effects of deliberate regrouping on productivity and morale:

One subcontract required that a certain number of steel rings be counted into cellophane bags; the bags were then stapled, counted, and packed into containers. This job called for both accuracy and speed. The first run was performed without any specific organized attempt to control either work flow or the physical distribution of workers. The second run was put through after the work situation had been restructured as an assembly line. The same number of units was completed under both conditions. In the structured situation there was a very substantial reduction in the number of rejects, and production time was cut by more than 50 per cent.

It was of special interest to note that, again in the structured situation, there was much evidence of lively conversation between adjacent workers. This took the form of comments on the subcontracts, and friendly comparisons of work speed. Also the number of unauthorized work breaks was markedly lower than it had usually been for like periods of past activity of the same nature. By manipulating certain situational factors, it therefore became possible to induce these desirable effects. All operations were related to focussed, definite production objectives with each person's contribution playing a necessary and immediately apparent part in the realization of the goal. The assembly line system also permitted the total operation to be broken down into components at roughly the same level of demand; jobs were set up as one- or two-step procedures, repetitive, and assigned so as to be well within each worker's scope. To some extent these environmentally created group pressures also served to keep recalcitrants at their work places when they might otherwise have drifted away or become inactive. Clients responded to the new arrangement with heightened spirit, a rise in productivity, and an increased level of social interaction. Comparable findings have been reported by group dynamics researchers.[9]

3. Improvement in Social Relationships. Jobs were provided that workers saw as "real" work, rather than as treatment or diversion.

Work histories of most clients in the shop disclosed a comparatively uniform range of occupational experiences. The "typical" employment record before disability showed a series of unskilled or semiskilled jobs, generally routine, often marginal in terms of social status, prospects for advancement and earnings, and not especially demanding of inner resources. One might speculate that the greater the resemblance of workshop duties and climate to the tenor of this vocational background, the more comfortable and secure a client might feel, and the more readily he might tend to perceive his duties as "work." This two-fold hypothesis has not been experimentally verified, but qualitative impressions lend support to the inference that subcontracting was in several ways socially and vocationally closer than handicrafts to the pattern of the group's past experience. Not only did handicrafts individualize personal responsibility and initiative for organizing work, maintaining high quality levels and employing a considerable range of skills, but also there was reason to believe that handicraft technics and products were probably unfamiliar to most clients before entering the hospital, and thereafter were associated almost exclusively with physical treatment and recreation divorced from

any conscious occupational purpose.

On the other hand, subcontracting afforded a highly structured work environment which imparted a measure of security and met important dependency needs. Nearly every job was uncomplicated and repetitive, permitting even the most severely handicapped worker to make a positive contribution and gain some sense of worth and achievement. Interdependence and responsiveness to supervision rather than independence and initiative were called for. In the assembly line situation, this apparently helped to promote a common level for social intercourse on which clients could satisfactorily relate. Work came from outside the hospital; neither subcontracts' components nor completed units were fundamentally similar to the media of therapy or recreation. In major respects, then, conditions became more favorable for clients to accept subcontracting rather than handicrafts as "real" work, and to see the Highland Shop as a place where "real" work—perhaps even enjoyable or useful work—was done.

Beginnings of group identifications have also become apparent, and indicate that the formation of shop committees or similar representative bodies may not be too far distant.[10] This interpretation receives corroborative support from clients' remarks, which have recently begun to reflect a growing, affirmative concern for activities in the shop. Some individuals have been known to speak with interest and pride of "my time card" and "my job." Ward personnel have commented on the frequency with which clients are prefacing requests for service with "Will you ——— so that I can get to the shop?" Increased contacts between workers outside the shop have also been reported.

Discussion

It may be felt that the assembly line tends to rob workers of their individuality or initiative, and probably examples can be cited where this has taken place. In all likelihood there are other, perhaps superior, methods to the assembly line subcontracting system for the achievement of the rehabilitation goals of sheltered employment. Introduction of any type of work or training program must assuredly take into account the backgrounds, personal qualities, and present capacities of those who will make up the labor or trainee force.

For the clientele discussed here, sociovocational histories disclose many dependent, inadequate personalities who have failed to attain pronounced social or vocational successes, and who have worked at fairly low status jobs before disability.[6] In a permissive but well-structured, supervised work environment they seem able, despite age, poor or mediocre past adjustment, and physical disability, to become more effective persons economically and socially. In a situation of greater stress or instability most would probably disintegrate or totally withdraw. On the other hand, it is far from unlikely that younger, better educated clients, or individuals who have held responsible jobs involving considerable "white collar" or manual skills might need a quite different type of occupational climate for morale and productivity "boosting" than that which seems to suit the "typical" client seen in the Highland Shop during 1956. Evidence is indecisive because too few such persons have taken part in the program thus far, but this subpopulation seems to be increasing and its needs, too, will have to be explored and met. For the over-all group reported on here, however, experience suggests that the planned use of light subcontracting to alter a negative interpersonal and occupational atmosphere may be an effective method of creating opportunities for obtaining significant vocational and social satisfactions by a large number of badly impaired persons who had formerly enjoyed neither of these.

Summary and Conclusions

The report considers workshop climate, work habits, and personal interactions in a research sheltered shop for severely disabled, hospitalized patients before and after introduction of light subcontracting. Before subcontracting was initiated, production emphasis was given solely to handicraft projects. Three outstanding features of this situation were defined:

1. Production rates and schedules fluctuated widely with the unpredictability of market demand for these products; this made it difficult to generate a sense of job stability and identification of the shop as a distinct place of work.

2. The production of saleable handicraft items made implicit demands for a combination of skills, initiative, versatility and work tolerance that the majority of clients could not meet.

3. Handicrafts as practiced in the sheltered shop failed to combat feelings of social isolation and self-devaluation that many clients were known to have experienced in the hospital.

A discussion of these factors indicated why they might have been conducive to generally low morale and productivity. Introduction of subcontracts was accompanied by three changes in the conditions of work:

1. A regular, stable work day was established with consistent standards of attendance and punctuality.

2. Subcontracts were set up on an assembly line plan, with workers being systematically grouped according to likeness of capacity and relatedness of assigned jobs.

3. Jobs were provided that workers saw as "real" work rather than as treatment or diversion.

Possible connections between these changes and increases of morale and productivity were discussed. Reasons were suggested for the preferential use of subcontracts to handicrafts to provide occupational and social satisfactions for the "typical" severely disabled client seen in the Highland Shop during 1956. Attention was drawn to the fact that the work situation in the Highland Shop might not be suitable for morale and productivity "boosting" of handicapped persons whose circumstances were appreciably different from those of the "typical" Highland Shop client. Further research into the goals and conditions of sheltered work experience for specific sub-populations among the handicapped would now serve a highly useful purpose.

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New Apparatus: A Portable Overhead Pulley Apparatus with Adjustable Pulley Positions

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Chicago

● A portable overhead pulley apparatus which is simple, stable, inexpensive and easily constructed with standard parts is described. The equipment can also be quickly disassembled for shipping purposes.

The therapeutic benefits derived from the use of overhead pulleys as an aid in improving function of the upper extremity and shoulder as in patients with hemiplegia, various types of rheumatic disease, orthopedic conditions, and others, are well established. Pulley apparatus are sometimes suspended from the ceiling, fastened to the wall, attached to a Balkan frame, or hung by other methods. Frequently, after attaching the pulleys in a permanent position, it is found that it would be more advantageous to have the pulleys in another place in the clinic.

A simple portable overhead pulley apparatus with adjustable pulley positions that I have used for a number of years is shown in figure 1. The apparatus is made out of iron pipe, standard pipe fittings (pipe flange, coupling reducer, tee, elbow, and caps), two sash cord pulleys, a plywood baseboard, and metal glides. The baseboard is made of ⅝-inch thick plywood, 24 inches by 30 inches, having 6 metal glides attached to the undersurface for ease in moving. The horizontal pipe member attached to the upright has a total overall length of 40 inches and has a number of notches cut in the upper surface 2 inches apart. The sash cord pulleys have a metal ring through the swivel eye and are suspended from the horizontal section of pipe. The position of the pulleys can then be easily changed by sliding the ring to the various notched positions in the pipe. The vertical pipe member is bolted securely to the baseboard 18 inches from the front edge by means of a pipe flange. The lower half of the vertical pipe is

Chief, Physical Medicine and Rehabilitation Service, VA Research Hospital; Associate Professor of Physical Medicine, Northwestern University Medical School.

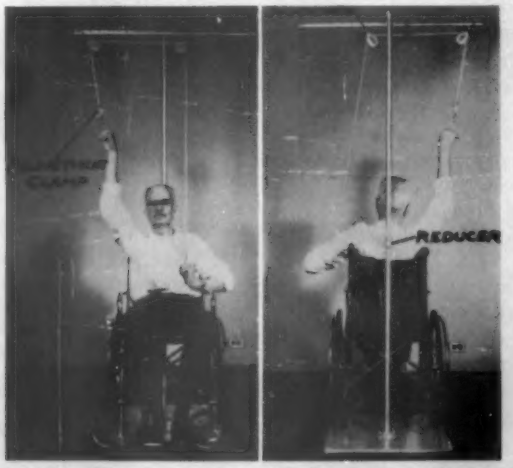

Fig. 1 — Front and back views of the portable overhead pulley apparatus with adjustable pulley positions being used by a patient with right hemiparesis. Note that one pulley is set at the extreme end of the horizontal support to secure proper direction of pull for maximum movement of the shoulder. The other pulley is set in an inward position for best assistive pull by the left upper extremity. Either pulley can be easily and quickly moved inward or outward and placed in the most suitable notch, depending on the desired therapeutic procedure. The chair on the baseboard stabilizes the apparatus.

made of 1-inch pipe, while the upper half is ¾ inch. Instead of the ¼-inch sash cord, ⅛-inch diameter flexible wire rope can be used. An adjustment clamp is used to regulate the length of the cord or cable.

Figure 1 shows the front and back views of a patient with a right hemiparesis using the apparatus. It is noted that the pulley on the side of the involved upper extremity is placed at a distance outward on the horizontal member in order to secure a more favorable direction of pull to get maximum abduction of the right shoulder. The pulley for the left shoulder is placed in an inward position to permit the patient to exert maximum pull to assist movements of the right shoulder. To meet the variable needs for other arm and shoulder disabilities, the pulleys can be easily and quickly moved to other positions on the horizontal pipe.

It will be noted that the baseboard is large so that the back wheels of the wheelchair rest thereon, the brakes being locked. For ambulatory patients, an ordinary chair or stool is placed on the baseboard. This makes for maximum stability of the portable overhead pulley apparatus while in use; yet, when the chair is removed, this apparatus is extremely portable and easily moved about in the clinic or from room to room.

Acknowledgment: The author is grateful for the cooperation of the engineering division for fabricating this apparatus, and to the manual arts therapy personnel of the physical medicine and rehabilitation service for the excellent photographs.

IMPORTANT ANNOUNCEMENT

The Editorial Board of the *ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION* has established a special subscription rate of $5.00 per year to be granted to bonafide residents in physical medicine and other specialties in the United States, its territorial possessions, Mexico, Canada, United Kingdom and Europe. The following rules apply:

1. The subscription may be entered for a period not to exceed three years.
2. All orders for this special rate must be accompanied by a letter of verification from the director of the training program confirming the resident's status and the number of years remaining in the resident's training program.
3. This special rate is not applicable if less than one year of training remains to be completed in the applicant's residency program.
4. The subscription is not transferable and must be entered in the resident's name. It cannot be sent to a hospital, organization, institution, or a person other than the subscriber.

Those desiring to avail themselves of the special rate to residents should write to Archives of Physical Medicine and Rehabilitation, 30 N. Michigan Ave., Chicago 2.

American Academy of Physical Medicine and Rehabilitation

Officers and Committees

1958

Officers

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Vice-President — Clarence W. Dail
Secretary — Harriet E. Gillette
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Executive Secretary — Dorothea C. Augustin

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Clarence W. Dail
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Economics in Private Practice

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Leonard J. Yamshon

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Liaison with American Hospital Association

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Liaison with Association of American Medical Colleges

Charles D. Shields, *Chairman*
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Liaison with Electromyography, Ultrasonics, and Mechanotherapy

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Liaison with Anesthesiology, Pathology, and Radiology

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Membership

A.B.C. Knudson, *Chairman*
Sedgwick Mead
Edward M. Krusen, Jr.

Nominating

Herman L. Rudolph, *Chairman*
Glenn Gullickson, Jr.
A.B.C. Knudson

Program

Charles S. Wise, *Chairman*
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Charles D. Shields

Research in Orthetics and Prosthetics

Herbert W. Park, *Chairman*
Robert L. Bennett
Roy H. Nyquist
Donald L. Rose
Odon F. von Werssowetz
Charles S. Wise

COMMITTEE REPORTS

The following reports were presented at the annual business meeting of the American Academy of Physical Medicine and Rehabilitation, September 9, 1957, Hotel Statler, Los Angeles.

Advisory Committee

This committee has no report to make.

Respectfully submitted,
Ben L. Boynton, *Chairman*
Robert W. Boyle
Clarence W. Dail
Harvey F. Davis
Murray B. Ferderber
Fritz Friedland
Harriet E. Gillette
Arthur C. Jones
Frederic J. Kottke
Lewis A. Leavitt
Gordon M. Martin
Louis B. Newman
Max K. Newman
Ray Piaskoski
Charles D. Shields
Wm. Benham Snow
George D. Wilson

By-Laws

The following recommendations are submitted by the Committee on By-Laws.

Your Committee recommends that a new paragraph be added at the end of Article III., Section 1 (c) to read as follows: "Active Members and Senior Members shall be designated as Fellows of the American Academy of Physical Medicine and Rehabilitation."

Your Committee recommends that all of Article III., Section 2 (a) after the word "Qualifications" be stricken and the following inserted in lieu thereof: "To be eligible for nomination to active membership, a person must be a certificant of the American Board of Physical Medicine and Rehabilitation."

Your Committee recommends that Article IV., Section 1 be amended by striking the hyphen between the words "Secretary-Treasurer" and inserting a comma in lieu thereof and to further amend Section 2 of the same Article by removing the hyphen between the words "Secretary-Treasurer" and inserting a comma in lieu thereof and by inserting the word "the" before the word "Treasurer."

Your Committee recommends that Article IV., Section 2 be further amended by inserting a period after the word "years" in the fourth line and by striking the balance of that sentence; and by striking the following in the tenth line thereof: "elected at the Annual Session in 1950 and thereafter, who"; and by striking the following in the eleventh, twelfth and thirteenth lines thereof: "Elected members of the Board of Governors elected at the Annual Session in 1949 shall serve in consistency with the terms of their elections."

Your Committee recommends that Article IV., Section 3 be further amended by inserting a period after the word "office" in the fourth line thereof and striking the balance of the sentence.

Your Committee recommends that the same article and section be further amended by striking the word "created" in the first line of the second paragraph thereof and by inserting the word "caused" in lieu thereof; and by striking the words "appointment of the President" in the third line of the second paragraph thereof and by inserting the words "action of the Board of Governors" in lieu thereof.

Your Committee recommends that all of Article IV., Section 5 (d) be stricken after the letter (d) and the following inserted in lieu thereof:

"Secretary — it shall be the duty of the Secretary to:

(1) Attend the annual and special Sessions of the Academy and through the Executive Secretary present the records and documents of the Academy. The Secretary, through the Executive Secretary, shall keep a correct and permanent record of the sessions and transactions of the Academy including registration of all members and others attending sessions of the Academy. The Secretary through the Executive Secretary shall receive the reports of all Committees and all papers immediately upon being read at the session and shall file them with the other transactions, subject to the order of the Board of Governors.

(2) Be the custodian of the books, records, manuscripts, papers, correspondence and seal of the Academy, through the Executive Secretary.

(3) Keep through the Executive Secretary, a current register of the members, none of whom shall be in arrears in dues or assessments at the time of the annual session. There shall be available a copy of the roster containing the names and addresses of the members of the Academy, in good standing, alphabetically arranged by states and provinces.

(4) Conduct, through the Executive Secretary, the correspondence and perform all other duties that usually pertain to the office of Secretary and through the Executive Secretary shall complete all business to be performed by him during his term of office and promptly hand over all documents and papers to his successor at the expiration of his term of office.

Your Committee recommends that a new subsection (e) be inserted in said Article IV., Section 5 as follows:

"(e) Treasurer — The Treasurer shall:

(1) Be custodian of all funds of every kind of the Academy and shall be accountable for their safekeeping. He shall, through the Executive Secretary receive all fees, dues and assessments from applicants and members and all money, including gifts, bequests, donations and grants belonging to the Academy and through the Executive Secretary give his receipt therefor. He shall promptly, through the Executive Secretary, deposit all such monies in the name of the Academy, in a banking institution, approved by the Board of Governors. He shall, in like manner, keep a current, true and correct record of all receipts and all disbursements.

(2) Pay out money only for a proper purpose and as approved by the Board of Governors or by resolution of the Academy. All such payments shall be by check countersigned by the Executive Secretary or an alternate designated by the Board of Governors. He shall execute a good and sufficient surety bond, as determined by the Board of Governors, and the premium therefor shall be paid by the Academy.

(3) Prepare through the Executive Secretary, a detailed report of all receipts and disbursements and of the financial condition of the Academy and present the same to the Board of Governors and to the annual session of the Academy, which report with his books and vouchers shall have been audited by order of the Board of Governors prior to the annual session.

(4) Faithfully perform the duties of his office in the manner set forth and forthwith upon the expiration of his term of office, hand over to his successor in office, all money, papers, record books, or other property belonging to the Academy."

Change present subsection (e) of said Article and section to subsection (f).

Your Committee recommends that Article VI., Section 1 be amended by striking the hyphen in "Secretary-Treasurer" and inserting a comma in lieu thereof.

Your Committee recommends that Article VI., Section 2 be amended by placing a comma after the word "Academy" at the end of the second sentence thereof, and adding the following: "including the appointment of an Executive Secretary of the Academy."

Your Committee recommends that Article XII., Section 2 be amended by striking the second sentence thereof.

Respectfully submitted,
Earl C. Elkins, *Chairman*
Glenn Gullickson
Miland E. Knapp
Frederic J. Kottke
Donald L. Rose

Economics in Private Practice

To enable Academy members to review this report, it is the wish of the membership that this report be mimeographed and individual distribution be made to members by the central office. *(This motion was put to a vote and carried.)*

Respectfully submitted,
Dominic A. Donio, *Chairman*
Arthur A. Rodriquez
Leonard J. Yamshon

Liaison with American Hospital Association

Early in March of 1957, Dr. George F. Lull, Secretary and General Manager of the American Medical Association, received a letter from the Director of the American Hospital Association requesting that the American Medical Association appoint representatives to assist in rewriting an American Hospital Association publication titled "Essentials of a Hospital Department of Physical Therapy." This letter was referred to Dr. Ralph E. DeForest, Secretary of the AMA Council on Medical Physics, for reply.

Dr. DeForest answered the inquiry by stating that there was no group connected with the American Medical Association at that time whose functions included the consideration of physical therapy departments. He suggested that either the American Academy or the American Congress of Physical Medicine and Rehabilitation be asked to appoint representatives to assist in the rewriting of the "Essentials of a Hospital Department of Physical Therapy."

At this point, a copy of Dr. DeForest's letter was forwarded to this committee from the central office by Mrs. Augustin. After a conference by mail among the members of this committee a letter was dispatched to the Director of the American Hospital Association calling attention to Dr. DeForest's letter and offering the services of representatives of the American Academy of Physical Medicine and Rehabilitation to assist in the rewriting of the "Essentials of a Hospital Department of Physical Therapy." We further pointed out that Academy members are fairly well distributed over the country and would be willing to assist in establishing physical therapy departments in local hospitals in their respective communities.

Five weeks later a reply was received from the Director of the American Hospital Association saying that since Dr. H. Worley Kendell was a member of the joint committee from the Americal Hospital Association and the American Physical Therapy Association, it was considered that "the viewpoints of physiatrists were adequately reflected in the revision." The members of this committee were not aware that Dr. Kendell was a

member of the Joint Committee. Nevertheless, the fact remains that neither the Academy nor the Congress was officially represented on the Joint Committee.

A recent letter received from Dr. Kendell indicates that he was not appointed to the Joint Committee until its work was well under way and the "basic policies approved." Dr. Kendell remarked in his letter that it was unfortunate that the American Hospital Association was not informed earlier of the existence of the liaison committee and this points up a weakness which should be considered and corrected.

Dr. Kendell suggested that a permanent liaison committee be recommended to the Executive Board of the American Hospital Association so that a permanent working arrangement may be developed. Dr. LeRoy Bates of the American Hospital Association staff indicated that the A.H.A. would look with favor upon such a relationship.

Your committee recommends that a new committee be appointed and that hereafter one new member be appointed each year for a term of three years.

Respectfully submitted,
Fred B. Moor, *Chairman*
Robert L. Bennett
Frank H. Krusen

Liaison with Association of American Medical Colleges

The committee has the following report to make. Through correspondence, concern was expressed by all members as to how effective the committee could be as it is now constituted. With annual turnover of membership, there is usually less than six months time in which the committee is able to work. Since your committee this year was spread across the entire United States, correspondence was our only means of communication. Six months is not adequate time to become truly active. Ideas are forthcoming but implementation is impossible in this brief period. Furthermore, annual turnover of membership makes it extremely difficult to carry on any worthwhile long-range activity.

Your committee also corresponded with Dr. Edward W. Lowman, Chairman, Committee on Implementation of Departments of Physical Medicine and Rehabilitation in Medical Schools. This is a committee of the American Congress of Physical Medicine and Rehabilitation. We agreed with the conclusions of his committee that there appears to be overlapping of function of both committees.

Therefore, your committee proposes that consideration be given to the establishment of one strong educational committee. The goals of this committee should be to promote the establishment of Departments of Physical Medicine and Rehabilitation in the medical schools and serve to guide and advise medical schools in the development of curricula in Physical Medicine and Rehabilitation. We further recommend that members of the committee be appointed for a minimum of three years on a rotational basis.

Respectfully submitted,
James W. Rae, Jr., *Chairman*
J. Wayne McFarland
Jerome S. Tobis

Membership

The following persons were elected to membership in the American Academy of Physical Medicine and Rehabilitation on September 9, 1957: Leonard Bender, Manfred Blashy, Karl Carlson, Robert Darling, Adeline Gauger, George Geiss, Lee Greene, Earl Hoerner, Kenneth Keever, George Koepke, Wladimir Liberson, Milos Lota, Harold Luscombe, Joseph Maschmeyer, Aniello Mastellone, Kathryn McMorrow, Herman Mautner, Rex McMorris, Mieczyslaw Peszczynski, David Rubin, and Emanuel Rudd.

The following persons have submitted applications for active membership; they have been found to fulfill the necessary requirements and their applications have been duly endorsed by a proposer and seconder: Ernest Adams, Bathurst B. Bagby, Jr., Hilda B. Case, Ernest Christensen, Edward F. Delagi, Lucile M. Eising, William J. Erdman II, Joseph Goodgold, Arthur E. Grant, Lawrence I. Kaplan, Reuben Leass, Milton Lowenthal, Charles Long, II, Torsten H. Lundstrom, Jack Meislin, Harry W. Mims, Leonard D. Policoff, Eugene J. Rogers, Louis Schwartz, Ragnar Stadin, Bernard Stoll, Elias M. Throne, Frederick E. Vultee, Jr., Max Weinstein, Edwin C. Welsh, and Wesley G. Woll, Jr.

The names of persons applying for membership who have been found ineligible because certain requirements are lacking, were read. The list of persons who have been invited to join the Academy but have not responded to the invitation was read. It is recommended that they be invited once again. It is also recommended that newly certified diplomates of the American Board of Physical Medicine and Rehabilitation, who are now eligible for membership, be invited to membership.

The committee receives with regret notification of the deaths of Louis P. Biro and Samuel A. Warshaw.

The committee has carried out the recommendations of the previous membership committees which were accepted by the membership at the meeting in 1956.

1. Considering the matter of recruiting physicians who are eligible for Academy membership, four second invitations were sent out. Of these, one application was received and processed for membership.

Following the suggestions of the preceding membership committee, it is recommended that eligible physicians who have been invited to join the Academy three times, without any reply, be dropped from the list. Again this should not preclude any individual member from recruiting these physicians or from any of these physicians making a voluntary application for membership in the Academy.

2. A new application form has been drawn up on which the applicants list their references. The committee now writes for the letters of reference which are mailed directly to the committee. The membership committee thereby strictly adheres now to Article III, Section 2, paragraph (b) of the by-laws which reads that "An eligible person may be nominated for active membership by two active members, one to act as proposer and the other as seconder, in writing to the Chairman of the Membership Committee, supplying such information and executing such application or nomination form as the Committee shall require."

Respectfully submitted,
Hans J. Behrend, *Chairman*
A.B.C. Knudson
Sedgwick Mead

Nominating

The committee "met" by means of correspondence four times during the past three months. After much deliberation and with due regard for the proposal of the committee on By-Laws concerning separation of the office of Secretary-Treasurer to two offices, we have unanimously arrived at the following slate for presentation to the members at this annual meeting.

President	George D. Wilson
President-Elect	Louis B. Newman
Vice-President	Clarence W. Dail
Secretary	Harriet E. Gillette
Treasurer	James W. Rae, Jr.
Board of Governors	Max K. Newman

Respectfully submitted,
Morton Hoberman, *Chairman*
Glenn Gullickson, Jr.
Herman L. Rudolph

Program

Since the chairman of the Committee on Advances in Education of the American Congress of Physical Medicine and Rehabilitation for 1956 had been somewhat disappointed in the response to the seminars offered by the Congress, the question of presenting a program by the Academy which could be an effort on the part of the Congress and the Academy was discussed. It was finally decided by the chairman of the 1957 Committee on the Advances in Education that the Congress would not schedule a seminar in 1957 and that the Academy would arrange a program that could be the beginning of an educational program.

The Program Committee of the Academy chose speakers whom it felt could present material based upon fundamental research that should have real value for all members of the Academy and their guests. It is the hope of the committee that an educational program can be developed as a refresher course to meet the requirements of those specializing or desiring to specialize in Physical Medicine and Rehabilitation.

Respectfully submitted,
Frances Baker, *Chairman*
Joseph G. Benton
Charles S. Wise

Practical Prosthetics

This committee was established for the first time, and considered at the last meeting were some of its avenues of progress. Through correspondence, the committee considered the various aspects of manufacturing braces and limbs as well as standards for this apparatus. It was learned that much of this type of apparatus is being prescribed for patients by physiatrists who also train these patients in its use. We also learned that there is no physiatrist representation on the American Board for Certification of the Prosthetic and Orthopedic Appliance Industry, Inc. Therefore this Board was requested that one or two physiatrists be included on their examining team. This suggestion was accepted quite favorably by the officers of that organization and the matter was referred to their general membership for consideration. To date, no reply has been received relative to this request. Therefore it is recommended that the succeeding committee continue in its effort to maintain liaison with the American Board for Certification of the Prosthetic and Orthopedic Appliance Industry for the purpose of seating at least one or two physiatrists on their Board. It is further recommended that this committee be perpetuated and that at least two members of the retiring committee be appointed to serve for the ensuing year for the purpose of continuity.

Respectfully submitted,
Odon F. von Werssowetz, *Chairman*
Murray B. Ferderber
Gustave Gingras

Study of Disability Group Insurance Plan

The following is a report of an investigation of insurance programs for the American

Academy of Physical Medicine and Rehabilitation. This has been partially combined with the study of questionnaires which were also presented to the American Congress of Physical Medicine and Rehabilitation. The associated service office of Mr. F. Wells McCormack of Philadelphia was utilized.

Some 800 questionnaires were sent out to Congress members and over 200 questionnaires were sent out to Academy members.

AMERICAN ACADEMY OF PHYSICAL MEDICINE AND REHABILITATION

AMERICAN CONGRESS OF PHYSICAL MEDICINE AND REHABILITATION

QUESTIONNAIRE

1. Do you now have weekly or monthly income disability insurance in a group plan?

   Yes ☐ No ☐

2. If Yes please state approximate amount of such income _____ and the association through which you receive the protection.

   _____

3. If you *now have* such protection, would you secure additional if another plan were offered through this association?

   Yes ☐ No ☐

4. If you do *not* have this type of protection now, would you secure it if this association made it available?

   Yes ☐ No ☐

Name _____

Address _____

City _____ Zone _____ State _____

Date of Birth _____

Academy members replied as follows:

Question	*Yes*	*No*
1.	95	42
3.	34	60
4.	37	6

Congress members replied as follows:

Question	*Yes*	*No*
1.	98	83
3.	45	54
4.	65	17

The combined results are as follows:

Question	*Yes*	*No*
1.	193	125
3.	79	114
4.	102	23

Accordingly, whatever your desire is for insurance in reference to the American Academy of Physical Medicine and Rehabilitation, with or without the American Congress of Physical Medicine and Rehabilitation, is up to the membership and their indication by vote.

Respectfully submitted,

Max Karl Newman, *Chairman*
Shelby G. Gamble
Walter J. Zeiter

SUCCESS IS THE KEYNOTE

of our Philadelphia — 1958 meeting! An interesting scientific exhibit will contribute much to our success. In addition to the tremendous value of these exhibits, YOU have the opportunity to be considered for one of the coveted awards. Requests for applications for scientific exhibit space in connection with the 36th annual session scheduled for August 24-29, 1958, Hotel Bellevue-Stratford, Philadelphia, are now being received. Official blanks are mailed on request. Address all communications to the American Congress of Physical Medicine and Rehabilitation, 30 N. Michigan Ave., Chicago 2, Illinois.

3rd International Congress of Physical Medicine

IIIe Congres international de Medecine Physique

3° Congreso internacional de Medicina Fisica

3. internationalen Kongress für Physikalische Medizin

Week of

August 21, 1960

WASHINGTON, D. C., U.S.A.

Preliminary information regarding this meeting may be had from the Office of the Secretary General: WALTER J. ZEITER, M.D., or from the Executive Secretary, DOROTHEA C. AUGUSTIN, 30 North Michigan Avenue, Chicago 2, Illinois.

You are invited to make application to present

a scientific paper, exhibit or film — at the

36th Annual Session of the American Congress of Physical Medicine and Rehabilitation, Philadelphia, The Bellevue Stratford, August 24-29, 1958.

Please check one or any of the following. Upon receipt of this application form, the necessary information will be sent to you. The decision of the Program Committee for the 1958 session covering any portion of the meeting will be final.

☐ I wish to present a scientific paper; the tentative title is_____

_____

☐ I wish to present a scientific exhibit; the tentative title is_____

_____

☐ I wish to present a scientific film; the tentative title is_____

_____

SIGNATURE_____ _____
(Please Print Your Name Here)

ADDRESS_____
(Please Print)

DATE_____

American Congress of Physical Medicine and Rehabilitation

1958 Membership Roster

(See page 176 for Alphabetic Listing)

Alabama

Meyer, Benjamin S., 1529 N. 25th St., Birmingham
Reagan, Charles H., VA Hospital, Tuscaloosa
Schwartz, Ferdinand F., Medical Director, Birmingham Institute of Physical Medicine and Rehabilitation, 916 S. 20th St., Birmingham

Arizona

Carr, Francis J., VA Center, Whipple
La Joie, William J., 2021 N. Central Ave., Phoenix
McGovern, R. E., St. Joseph's Hospital, 350 W. Thomas Rd., Phoenix

Arkansas

Lecklitner, Myron D., 533 Oaklawn Blvd., Hot Springs
Nolden, Wesley L., 7424 Gable Dr., Little Rock
Smith, Euclid, 236 Central Ave., Hot Springs National Park

California

Aldes, John H., 4833 Fountain Ave., Los Angeles
*Anderson, Miles H., Director, Prosthetics and Orthotics Educ., University of California Medical School, Los Angeles
Austin, Elizabeth S., 1400 N. Vermont, Los Angeles
Baker, Frances, 1 Tilton Ave., San Mateo
Bard, Gregory, Medical Director of Rehabilitation, Univ. of California Medical Center, Parnassus & Second Aves., San Francisco
*Bechtol, Charles O., Professor of Orthopaedic Surgery, Univ. of California Medical Center, Los Angeles
Billig, Harvey E., Jr., Medical Director, The Billig Clinic, 139 S. Alvarado St., Los Angeles
Bingham, Robert, Medical-Center Bldg., 3536 10th St., Riverside
Cailliet, Rene, 721 Georgine Ave., Santa Monica
Carlson, Karl E., 300 Homer Ave., Palo Alto
Chapman, Carrie E., Chief, Physical Medicine and Rehabilitation, VA Hospital, 13th & Harrison Sts., Oakland
Christensen, E. C., College of Medical Evangelists, Loma Linda
Dail, Clarence W., 1720 Brooklyn Ave., Los Angeles
Dorinson, S. Malvern, 450 Sutter St., San Francisco
Eising, Lucile M., Univ. of California Hospitals, Third & Parnassus Aves., San Francisco
Freeman, Richard V., Chief, Physical Medicine and Rehabilitation, VA Psychiatric Hospital, Los Angeles
Golseth, James G., Pasadena Clinic of Physical Medicine, 1060 E. Green St., Pasadena
Haase, Karl H., VA Center, Los Angeles
Hirschberg, Gerald G., Medico-Dental Bldg., 2940 Channing Way, Berkeley
Huddleston, O. Leonard, Medical Director, California Rehabilitation Center, 1 Pico Blvd., Santa Monica
Lawrence, G. P., Box 722, Lancaster
Maschmeyer, Joseph E., 312 N. Boyle Ave., Los Angeles
McFarland, J. Wayne, College of Medical Evangelists, Box 476, Loma Linda
Mead, Sedgwick, California Rehabilitation Center, 2600 Alameda St., Vallejo
Miller, Robert V., Jr., The Beverly Hills Medical Clinic, 133 S. Lasky Dr., Beverly Hills
Modern, Frederick W. S., VA Hospital, Long Beach
Moor, Fred B., 312 N. Boyle Ave., Los Angeles
Moore, Richard W., California Rehabilitation Center, 1 Pico Blvd., Santa Monica
Moore, W. Harvey, Maj., MC, U.S.A., Letterman Army Hospital, San Francisco
Munger, Richard S., Capt., MC, U.S.A., Letterman Army Hospital, Box 135, San Francisco
Northway, William Herrick, Professor of Physical Medicine, Stanford Univ. School of Medicine, San Francisco
Nyquist, Roy H., Chief, Physical Medicine & Rehabilitation Section, Cord Injury Serv., VA Hospital, Long Beach
Powers, Harry J., 5271 El Parque, Long Beach
Reese, Edward P., Chief, Dept. of Physical Medicine and Rehabilitation, St. Francis Hospital, Lynwood
Resnik, Joseph, 14810 Weddington St., Van Nuys
Rubin, David, 6360 Wilshire Blvd., Los Angeles
Selle, Wilbur A., Univ. of California School of Medicine, 405 Hilgard Ave., Los Angeles
Shea, Paul A., Mercy Hospital, San Diego
Smith, Robert L., Dept. of Physical Medicine and Rehabilitation, Southern California Permanente Medical Group, 130 N. La Cienega, Los Angeles
Stadin, Ragnar, 1509 E. Wilson Ave., Glendale
Stonehill, Theodore, 2516 Overland Ave., PO Box 64522, Los Angeles
Tratar, Anton A., Cdr., (MC) USN, US Naval Hospital, Oakland
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ARTICLE III — MEMBERSHIP

Section 1. Classes of Members. — This organization consists of

(a) Active members
(b) Associate members
(c) Honorary members
(d) Affiliate members

Section 2. Qualifications. — The qualifications stated below with respect to each class of membership noted are prerequisites for eligibility for the class stated:

(a) To be an Active Member a person must be:

(1) A graduate in medicine and surgery, legally qualified to practice medicine and surgery in some state or territory, or in the District of Columbia or in some foreign country.

(2) Elected to such membership in accordance with the applicable provisions of the By-Laws.

(b) To be an Associate Member, a person shall be a physiologist, physicist, biophysicist, electrical engineer, mechanical engineer, chemical engineer, research worker, investigator, teacher or any other expert in the field of physical medicine and rehabilitation and shall be invited by the Membership Committee.

(c) To be an Honorary Member a person shall be an eminent person interested in physical medicine and rehabilitation and shall be invited by the Membership Committee, or shall be a holder of the Gold Key.

(d) To be an Affiliate Member, a person shall be actively enrolled in an approved residency or fellowship in Physical Medicine and Rehabilitation.

(Excerpt from Constitution and By-Laws, American Congress of Physical Medicine and Rehabilitation, as of September, 1957)

ALPHABETIC INDEX OF MEMBERS OF THE

American Congress of Physical Medicine and Rehabilitation

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Abramson, A. S., Dobbs Ferry, N. Y.
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abstracts

Influence of Age and Sex on Susceptibility and Clinical Manifestations in Poliomyelitis. L. Weinstein. New England J. Med. 257:47 (July 11) 1957.

The author studied the importance of age and sex in determining the nature of poliomyelitis in 618 patients with the paralytic form of the disease observed by him from 1950 through 1955. One hundred patients were five years old or less; 161 were between six and 15 years of age; 213 between 16 and 30; 117 between 31 and 39; and 27 between 40 and 65 years of age. Poliomyelitis was more severe in adults than in children, as indicated by the greater frequency of urinary dysfunction, quadriplegia, respiratory paralysis, and death in persons over the age of 16 years. When monoplegia occurred, the left side was involved more often than the right, especially in adults. There appeared to be a sex predisposition to susceptibility to poliomyelitis; among children, there was a preponderance of males, but in adults, there was a small excess of females. Among children up to 16 years old the male to female sex ratio was 63.2 to 36.8; in 330 adults between 16 and 39 years of age women outnumbered men (53.4 to 46.6). A striking reversal of this trend was noted in persons between 40 and 65; of the 27 patients in this group 20 (74%) were men and seven (26%) were women.

In adult patients, quadriplegia, respiratory paralysis, and death occurred more frequently in men than in women, despite the greater number of women in this age group. In men over 40 poliomyelitis is most likely to be severe and fatal; next in order of risk is the male 16 to 39 years of age. Because of the high risk of severe, permanent crippling and death, it is just as important to immunize all adults against poliomyelitis as it is to protect all children, despite the lower incidence of the disease in the older age group.

Electrical Signs in the Diagnosis of Carpal Tunnel and Related Syndromes. J. A. Simpson. J. Neurol. Neurosurg. & Psychiat. 19:275 (Nov.) 1956.

This paper is a discussion of the differential diagnosis of the cause of numbness and tingling in the fingers associated with weakness of the small muscles of the hand. This syndrome may result from compression of nerve roots or peripheral nerves supplying the hand, or of the blood vessels supplying the affected nerves. The compression may occur at various sites in the spine, thoracic outlet, or more peripherally. The median nerve is commonly compressed in the carpal tunnel on the flexor aspect of the wrist. This diagnosis is most important in view of the efficacy of surgical decompression of the carpal tunnel.

Electromyographic diagnosis depends on demonstration of evidence of partial denervation. This author has used the phenomena known to be present in experimental ischemia of short length of nerves as the basis for examining patients having the carpal tunnel syndrome. These phenomena are diminished conduction velocity of the nerve impulse through the ischemic segment, and repetitive firing of motor nerve fibers after a single stimulus by electric shock. These experimental phenomena suggest the pathological basis for the parasthesiae and pain occurring in the clinical syndrome.

Seventeen patients were examined, two of whom had ulnar nerve lesions. The technic and material used in determining the conduction velocity and repetitive firing of motor nerve fibers is explained. The results are tabulated. Eleven of 15 cases of carpal tunnel syndrome demonstrated slowed conduction in the ischemic section of the median nerve. In three cases this returned toward normal after operative decompression. Repetitive firing of motor units was present in seven of 15 cases. In one case of traumatic neuritis of the ulnar nerve at the elbow, slowed conduction was shown to be confined to the damaged segment of the nerve.

The incidence of positive findings in the small number of patients investigated suggests that these changes may be of value as a confirmatory test.

Ultrasonic Energy and Surgically Produced Defects in Bone. Nicholas I. Ardan, Jr.; Joseph M. Janes, and J. F. Herrick. J. Bone & Joint Surg. 39-A:394 (Apr.) 1957.

The authors made a study of the effect of ultrasonic energy on the healing of surgical defects in the femora of 67 dogs. A rectangular window, 0.35 by 1.8 centimeters, was cut from the right lateral femoral cortex of each dog. After a 15 minute to two hour interval, this was followed by three applications of 5 to 25 watts of ultrasonic energy, over a sufficient period of time to produce a rise in

temperature of seven degrees C. at the defect as measured by a thermocouple, and then continued for five minutes, with a five-minute cooling period between each of the three applications. Serial roentgenograms were made, and dogs were sacrificed from two weeks to 12 months after exposure to ultrasound.

Stimulation of healing of these defects was not seen. Wound healing was not delayed; however, a delay in healing of the bony defects was noted, associated with cortical necrosis (starting centrally and spreading peripherally) and medullary fibrosis. Evidence of accelerated repair of the defect was not found in any case. The exposed femora often exhibited a greater amount of new-bone formation than the controls, but this new-bone formation was not at the defects, but at various distances from them, whereas new bone in the controls was in and adjacent to the defects; that is, the osteogenesis apparently stimulated by ultrasound was purposeless as far as repair of the defect was concerned.

Fractures occurred in 33 per cent of the exposed femora but in only four per cent of the controls. Even slight cortical necrosis makes a bone more susceptible to fracture. This possibility should be remembered when manipulation of a joint is considered after ultrasound therapy.

The authors acknowledge that the safety factor of periosteal pain had been eliminated in this study, because the dogs were anesthetized, and that the amount of energy striking the bone in these dogs was undoubtedly greater than that received by patients.

They suggest further investigation using more frequent and less concentrated exposures in non-anesthetized animals with use of a technic and dosage comparable to those used clinically.

Rheumatoid Arthritis of the Cricoarytenoid Joints. W. S. C. Copeman. Brit. M. J. 1:1398 (June 15) 1957 [London].

Rheumatoid arthritis has been described affecting almost every diarthroidal joint in the body and should be extended to include the cricoarytenoid joints. These joints are small, extremely mobile, and involved in phonation and normal full respiration. The muscles controlling the movements of the cricoarytenoid joints are innervated by the recurrent laryngeal branch of the vagus. Unilateral paralysis of this nerve is common and causes hoarseness, but not loss of voice. Bilateral paralysis of the nerve results in loss of voice and stridor on deep respiration. Three cases are described which demonstrate the varying stages in this syndrome, e.g., acute and subacute recurrent laryngeal episodes and complete ankylosis of both cricoarytenoid joints in the final stage of rheumatoid disease. The differential diagnosis in these cases lies only between rheumatoid arthritis involving the cricoarytenoid joints and paralysis of the recurrent laryngeal nerves. The involvement of the cricoarytenoid joints may occur as an integral part of the polyarthritic process.

Panel Discussion. Problems in Rehabilitation of the Hemiplegic Patient. J. S. Tobis, et al. New York J. Med. 57:1377 (Apr.) 1957.

This paper contains several short articles concerning various problems in rehabilitation of hemiplegic patients. In the first article Dr. Tobis discussed shoulder pain which commonly occurs in hemiplegic patients. The author believes the etiology of this pain is a subluxation of the shoulder joint due to weak muscular support. To prevent this pain the patient holds his arm in adduction. Therapy consists of supporting the shoulder with a sling and of maintaining range of motion with passive exercises to prevent contracture formation.

In the second article Dr. Lowenthal discusses the problem of knee contractures. These are largely preventable by judicious use of splints, passive range of motion exercises, and muscular relaxant drugs. If contracture develops, surgical correction may be required to relieve them. He emphasizes the importance of early therapy in prevention of these deformities.

In a paper on psychoneurologic problems, Dr. Belmont stresses the importance of understanding the relationship between learning and motivation. Some patients have severe learning defects due to neurologic defects and proper adjustments in their training program must be made. If these learning deficits are not recognized, poor motivation can result. This same problem is discussed in the final paper by Dr. Maringer. He states that many of these patients are more hampered by a sensory loss than a motor loss. It does no good to subject these people to an exercise program. Such patients sometimes can be taught to replace their sensory loss with the use of another sense. The author expresses the belief that many more patients will be helped when more physicians become cognizant of the kinanesthetic patient.

Ultrasonics in Medicine. F. F. Schwartz. J.M.A. Alabama 26:200 (Feb.) 1957.

A historical review dating back to the work of Wood and Loomis in 1927 is presented. Considerable reference is made to the author's own original papers on the clinical use of ultrasound plus those of many other workers. Without going into any details as to diagnosis or other therapeutic measures used, the author presents a statistical analysis of 611 cases receiving 6675 ultrasonic treat-

ments. He obtained 81.5 per cent improvement for those cases not specifically described other than patients having torticollis, bursitis, sprains, sinusitis and phantom limb.

Of the 6675 treatments given, only three complications ensued (dizzy spell, fainting spell and weakness). The author believed these were "due to irradiation of areas T1 and T2." Twenty-five patients were rheumatoid and he noted 76 per cent improvement but these patients were receiving steroid therapy simultaneously. The best results were obtained in cases with involvement of the knees and hands. A table summarizing percentage of improvements is given and his lowest percentage was 70.2 "hands" and his best percentage was 100 in "phantom pain" and "non allergic sinusitis with drainage." Dosage never exceeded 1.5 watts per square cm. for five to ten minutes.

The author summarizes his observations by claiming that it is not the thermal factor which will bring about dissolution or resorption of calcium but the mechanical effect of the high frequency of the sound waves together with the biochemical changes in the cells and their effect on nerve impulses.

Electromyography and Electrical Stimulation of Nerves in Diseases of Motor Unit. L. M. Eaton, and E. H. Lambert. J.A.M.A. **163**:1117 (Mar. 30) 1957.

This article presents observations in the field of electromyography and includes much of the recent concepts of electrophysiology of neuromuscular action. Careful description and explanation is given of electromyographic testing in the normal and some pathologic neuromuscular states.

Observations are described on the expected patterns with needle insertion, with normal muscle at rest, with voluntarily contracting muscle, fibrillation and fasciculation discharges, myopathy, and lower motor neuron disease. The value of clinical electromyography is emphasized in problems involving all or part of the motor unit as well as determining distribution of motor unit disease. Examples are cited for diagnosing of lesions of peripheral nerves, both partial and complete denervation problems. Typical illustration of such a problem is given in a patient with carpal tunnel syndrome.

A "new" syndrome of myasthenia in individuals with malignant mediastinal tumors is described. Six case illustrations are presented for evidence of such a syndrome. Clinically one finds weakness and undue fatigability of the pelvic girdle muscles, decrease or absent muscular stretch reflexes, and a relatively poor response to test doses of neostigmine in comparison to those observed with myasthenia gravis. Electromyographically there is no evidence of denervation but there are variations in the motor unit potentials as in myasthenia gravis. Also there are normal conduction velocities and a greatly reduced twitch and action potential to a single maximum stimulus of the nerve (despite a normal test of the muscle conventionally).

In closing the authors cite the increasing frequency with which electromyography is being used and the rewards in diagnosis and research that can be expected from its continued utilization in clinical medicine.

Two Cases of Paralytic Muscular Dystrophy Coincident with Poliomyelitis. Poul Lutken. Acta. orthop. scandinav. **27**:64 (Fasc. I) 1957.

Two cases are reported of poliomyelitis and progressive muscular dystrophy occurring in the same patient. Although older authors regarded poliomyelitis as leaving a "locus minoris resistentiae" in the spinal gray matter, which might result later in diseases such as chronic poliomyelitis, spinal muscular dystrophy, progressive muscular atrophy and amyotrophic lateral sclerosis, these authors consider the combination as purely accidental. Only two cases have been reported in the literature previously, one in 1926 and the other in 1931. The author states that it is of practical importance to diagnose both diseases in order to select adequate therapy. Early recognition of the combination of diseases is valuable chiefly to avoid operations requiring prolonged confinement in bed which has an unfavorable influence on the progressive muscular dystrophy.

Braces and Brace Management. Erbert F. Cicenia, and Morton Hoberman. Am. J. Phys. Med. **36**:136 (June) 1957.

The authors present a very complete description with many illustrations of the lower extremity braces showing all their component parts and the variations and modifications that can be used.

General principles of bracing are covered in the first few pages indicating the arguments for those who will "over brace" a person and the reasons why others feel that "under bracing" is the best. Other philosophies of bracing are covered, but the authors prefer to take a middle point of view — feeling that the trunk muscles can be hypertrophied, thereby obviating the need for excessive braceage but that a patient needs enough bracing to give him stability and to teach him proper control

The functions of lower extremity braces are also covered in the opening paragraphs. After a brief description of all the basic components of lower extremity braces with clarifying illustrations, they go on to describe the purposes and the variations of the uprights, the joints, the locks, shoe attachments and the ankle stops with advantages and

disadvantages of each. The authors cover the four general drop foot braces and then go on to describe the various brace modifications and the need for these, i.e. pelvic bands, spreader bars, gluteal extensors, gluteal straps, knee straps and T-straps. The article is concluded with several paragraphs on putting on and taking off braces and how to dress and undress with braces.

Osteoarthrosis of the Knees. Evaluation of Examination and Treatment in 221 Patients. H. I. Weiser. J.A.M. Israel 53:4 (July) 1957.

A study was made of 221 patients with chronic osteoarthrosis of the knees with pain, limitation of motion, and deformity. Prior treatment with x-ray or support had been of no avail. Sixty-one patients were female. One hundred seventy-seven patients were between 40 and 69 years of age. Of 140 patients treated by diathermy, bandaging of the knees and quadriceps resistance exercises, 103 patients showed marked or significant improvement. Of 61 patients who did not receive quadriceps exercises, only 12 improved. Intra-articular injections of hydrocortisone into 12 patients provided only temporary improvement. Of 69 patients treated with intra-articular injections of hydrocortisone, shortwave diathermy, and individual progressive resistive exercises of the thigh muscles, 59 patients showed improvement lasting from 9 months to 2 years. In addition to treatment patients must learn to modify daily activity to decrease the stress on the knees.

Production of Gastric Ulcer in Dogs on Protein Depletion Regime. P. F. Hahn; Percy Baugh, and Douglas L. Foster. Proc. Soc. Exper. Biol. & Med. 95:238 (June) 1957.

The authors maintained 15 dogs on a low protein diet (7.4% of their calories as protein) and concomitantly forced hemoglobin production to further deplete the protein reserves. This was done by periodic phlebotomy and intervenous injections of large doses of iron as a saccharated oxide. Although the authors did not present any tables of their results, the animals generally survived from three to six months. On autopsy, six of them had perforated gastric ulcers, two had hemorrhagic areas in their stomachs and four had absent mucosa in the lesser curvature of the stomach. These results are similar to those in the literature that the authors reviewed. These dogs also lost a great deal of body weight and their electrophoretic patterns underwent considerable change as far as distribution of plasma proteins constituents was concerned, but the total plasma proteins were not markedly altered.

Improved Therapy for Peptic Ulcers. I. H. Kupersmith. Am. J. Gastroenterol. 28:439 (Oct.) 1957.

In a review of the literature, favorable results are reported in a series of 155 cases of peptic ulcer treated with Romach (Roter) tablets for a period of three to six weeks. The medication contains bismuth subnitrate, specially processed for fine trituration and minute particulation, with a synergistic antacid combination. In this form the protective bismuth subnitrate adheres closely to the ulcer wall and encourages epithelization and healing. Treatment with Romach (Roter) tablets provided immediate relief of pain in 92% of cases and roentgenological healing of the ulcer in 81%. The average weight gain was 7.9 lb. and occult blood disappeared from the stools in all of the 6 cases in which it was found. The special features of this medication are prolonged relief of pain, suitability for ambulatory patients, correction of gastric hyperacidity, absence of side reactions, and early healing of the ulcer in most cases.

Skeletal Muscle Analysis in Health and in Certain Metabolic Disorders. I. The Method of Analysis and the Values in Normal Muscle. Benjamin A. Barnes; Esther B. Gordon, and Oliver Cope. J. Clin. Invest. 36:1239 (Aug.) 1957.

This paper is the first in a series designed to study the role of magnesium in disease. Skeletal muscle was selected for analysis. The present report is concerned with the normal composition of muscle and will be used as the control for later studies of diseased states.

The concentration of Na, K, Mg, P, intracellular water and non-collagen nitrogen is determined and is expressed per kilogram of intracellular water and per gram of non-collagen nitrogen. The latter is the nitrogen in whole wet muscle fiber soluble in dilute alkali, and is a measure of the functioning mass of muscle cells.

The data is subjected to an analysis of variance and it is concluded that the analytical technics are sufficiently precise to determine variations between patients.

A Trial of Five Tranquillizing Drugs in Psychoneurosis. M. J. Raymond; C. J. Lucas; M. L. Beesley; B. A. O'Connell, and J. A. Fraser Roberts. Brit. M. J. 2:63 (July 13) 1957.

Five drugs claimed to relieve tension were studied in a heterogeneous group of seventy-nine psychoneurotic outpatients. The drugs

used were chlorpromazine, Amytal, Suavatil, Equanil, Sedaltine (a poly-pharmaceutical preparation) and a placebo (lactose). Each patient served as his own control and was given six medications (five tranquillizers and a placebo) for successive two week periods. He was told he was taking part in a trial to find out which medication was best for him and he was asked to record his judgment of the effect of each drug day by day on a five-point scale. Each medication was supplied as two tablets three times a day in a dosage considered adequate for outpatient treatment.

Twenty-four of the seventy-nine patients defaulted at some time during the twelve week period, but there was no evidence that the loss was other than random. The experimental design was a Latin square which tended to minimize the extra-experimental sources of variation. The scores based on the patients' daily assessments did not vary according to the period during the twelve weeks when a given drug was administered. Scores for any given drug were independent of the drug given in the preceding two week period. In terms of the patients' judgments, the average score for the placebo was close to a nil response — neither good nor bad. The average score for Amytal was significantly superior statistically to that for the placebo. There was no significant difference between the four other drugs and the placebo.

Syndrome of Acquired Aphasia with Convulsive Disorder in Children. William M. Landan, and Frank R. Kleffner. Neurology 7:523 (Aug.) 1957.

The authors describe six children who showed a syndrome of acquired aphasia in association with some manifestation of convulsive disorder. There were recurrences of aphasia with subsequent improvement in two. In the cases reported electroencephalographic improvement under medical treatment tends to parallel improvement in speech reeducation.

The aphasias described persisted for periods ranging from a day to several months, with some symptoms persisting from two weeks to several years. The degree of paroxysmal disorder, but not the timing of clinical seizures, corresponded with the severity of language disturbance. Electroencephalographic disturbances were usually bilateral and often were more prominent in the temporal lobe.

The authors state that the general prognosis for these children is good with appropriate medical and speech treatment.

A Cineradiographic Investigation of Pharyngeal Deglutition. R. I. Roberts. Brit. J. Radiol. 30:449 (Sept.) 1957.

This is a thorough and lucid presentation of the findings in approximately 100 normal persons of both sexes between 17 and 35 years of age who were studied by serial radiography and by cineradiography while swallowing a barium emulsion. The author describes the movements of each of the major anatomic structures involved, relating the movements of other structures to these. In general, the findings and descriptions parallel those of Bosma who reported recently (Pediatrics, 19:881-907 and 1053-1077) on 20 normal subjects and 27 with post-poliomyelitis disabilities.

The technic described, and the apparent validation of findings in this relatively large series, suggests that methods are now available for evaluating not only neurologic disturbances of swallowing and speech but also the late results of the various methods currently in use for correction of cleft palate.

There appear to be some discrepancies particularly in the descriptions of the movements of the soft palate, and of the relationship of movements in speech to those of swallowing, between the present and those of Bosma.

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book reviews

The reviews here published have been prepared by competent authorities and do not necessarily represent the opinions of the American Congress of Physical Medicine and Rehabilitation and/or the American Academy of Physical Medicine and Rehabilitation.

CLINICAL ORTHOPAEDICS. Vol. 9. The Pathological Physiology of Metabolic Bone Disorders. Edited by *Anthony F. De Palma*, M.D. Cloth. Price, $7.50. Pp. 353, with illustrations. J. B. Lippincott Co., E. Washington Sq., Philadelphia 5, 1957.

Clinical Orthopaedics is designed for the publication of original articles offering significant contributions to the advancement of surgical knowledge. The volumes are in symposium form produced under the auspices of the Association of Bone and Joint Surgeons. This volume is divided into three sections. Section 1 — The Pathologic Physiology of Metabolic Bone Disorders; Section 2 — General Orthopaedics, and Section 3 — Motorist Injuries and Motorist Safety. This last section is of interest in that it discusses various means of preventing accidents. Discussions are headed "Driver Proficiency"; "Human Engineering and Automobile Safety"; "The Need for Motor Car Legislation" with chapters on various methods of stopping such accidents. Anyone who is at all interested in controlling the accidents which occur on the road, would certainly be interested in this section as it covers a great deal of the material to date.

Section 1 is, of course, given over to material that should interest anyone who is in any way interested in physiology. The first monograph, "The Structure of Bone Mineral" by Aaron S. Posner, Ph.D., discusses the chemistry of bone crystals. He discusses the very small size of the crystals making up bones and therefore the very great surface that is present where exchange of ions can take place. Various ions go into the makeup of the crystals, but it has to be possible for an exchange to take place rapidly so that in this bone-crystal system a solution can surround the crystal; the hydration layer containing non-specific anions has to be in rapid equilibrium with the solution. Robinson and Cameron of Johns Hopkins University Medical School discuss "The Organic Matrix of Bone and Epiphyseal Cartilage." Calcification takes place differently in the two tissues — the differences are described and the differences in physiology are discussed. Dr. Reifenstein, Jr., has a monograph entitled: "Definitions, Terminology and Classification of the Metabolic Bone Disorders." A classification of metabolic bone disorders is presented in terms of the alterations in the total mass of calcified bone and the status of the bone form and the bone resorting process. The following specific metabolic bone disorders are included: Osteoporosis; Osteomalacia; Osteitis Fibrosa Generalisata; Hyperosteogenesis; and Osteosclerosis. The definitions and the causes of these disorders are considered. Franklin C. McLean, M.D., of the University of Chicago, discusses the parathyroid hormone and bone. Many theories are discussed. The parathyroid hormone has a direct action upon bone tissues leading to resorption. A mechanism for the resorption of bone is proposed providing for solution of the bone mineral, collagen and ground substance. A substance having a strong affinity for calcium is responsible for solution of the bone mineral. There is rapid movement of calcium ions in both directions between the blood and the bones independent of the parathyroid glands, the parathyroid hormone, acting in one direction only, by mobilization of the bone mineral. A brief resumé is given of the relation of the parathyroids to bone disease and of the clinical manifestations of hyperparathyroidism. Harold E. Harrison of the Pediatric Division of the Baltimore City Hospital and Department of Pediatrics, Johns Hopkins University School of Medicine, discusses disorders of skeletal calcifications in which hypophosphatemia is one of the fundamental physiological defects. If the concentration of inorganic phosphate in extra cellular fluids is markedly reduced, phosphate in bone matrix cannot be concentrated to levels needed for precipitation of bone salt. In the growing subject, rickets result. In the adult, osteomalacia. The various reasons for these chemical changes are described.

"Anabolic Steroid Therapy for the Protein Depletion and Osteoporosis Induced Corticoid Hormones" is written by Edward C. Reisenstein, Jr. Corticoid materials have dramatic beneficial effects in patients with a variety of conditions. Frequently these agents also have adverse effects upon proteins and osseous tissues. This article reviews these unfavorable effects and some of the evidence supporting the use of anabolic steroid therapy to control them. Osteosclerosis is discussed by C. L. Hinkel, Director, Department of Radiology, George F. Geisinger Memorial Hospital, Danville, Pa. A chart assisting in the differential diagnosis of these several conditions is very helpful in understanding the involvement

which occurs. Snapper of Brooklyn has an excellent chapter on "Multiple Myeloma."

"Skeletal Lesions Produced by Aminonitriles" is described by Ignatio V. Ponseti, Department of Orthopaedic Surgery, State University of Iowa. Lathyrism is a syndrome produced in man and in animals caused by diets high in various types of peas. The results of feeding peas or aminonitriles to animals experimentally are described. A degeneration of the lateral columns of the spinal cord has been found. Kyphoscoliosis is a common finding in animals along with dissecting aneurysm of the aorta and changes in epiphyses which lead to slipping of the epiphysis as seen in Osgood-Schlater's disease, Legg-Perthe's disease, etc.

The second section deals with general orthopaedics. Several excellent chapters are included in this section, but two are particularly interesting to the physiatrist, namely "The Management of Idiopathic Scoliosis" and "Prosthetics in Child Amputees." As can be noted, the information is new and beautifully presented. The bibliographies closing each chapter are long and valuable. This is a most worthwhile book. *(Frances Baker, M.D.)*

VOCATIONAL COUNSELING WITH THE PHYSICALLY HANDICAPPED. By *Lloyd H. Lofquist*. Cloth. Price, $5.00. Pp. 384. Appleton-Century-Crofts, Inc., 35 W. 32nd St., New York 1, 1957.

Vocational Counseling with the Physically Handicapped is an excellent book which contributes to our concept of vocational counseling. It cooperates closely with the team concept and the total rehabilitation idea in hospital activities. It is especially valuable and instructive to those in physical medicine and rehabilitation. The author notes that the counselor can obtain "much useful specific information from physical medicine and rehabilitation facilities." This includes socialization and motivation of the patient as well as pre-vocational evaluation. This furnishing of information by the therapists is not often stressed enough even by the physiatrists. The therapists in physical medicine and rehabilitation are not always sufficiently aware of the importance of their progress notes to the physicians and the counselors. The lack of information which the medical men, vocational counselors, sociologists and psychologists need is frequently available from those who work with the patients in physical, occupational, educational, corrective, and manual arts therapy.

The book is interesting and has a wide range of usefulness in other branches of medicine. It supplies information on the vocational treatment of the diabetic, amputee, heart patient, the hypertensive, paraplegic, and others. "Counseling Interview Considerations," and "Testing, Diagnosis and Theory" are chapters that will increase appreciation of the book. *(J. L. Rudd, M.D.)*

ATLAS OF NEUROPATHOLOGY. By *Nathan Malamud*, M.D. Cloth. Price, $20.00. Pp. 468, with illustrations. University of California Press, Berkeley 4, Calif., 1957.

This new and excellent *Atlas of Neuropathology* should be of great interest and of real value to all physicians practicing and teaching in the field of physical medicine and rehabilitation as well as to others concerned with diagnosis and treatment of neurologic disorders.

The book is a convenient reference in which the gross and microscopic pathologic changes occurring in nervous and mental diseases are correlated with concise statements of the clinical manifestations of the disease processes. The presentation usually includes a typical case history followed by a brief description of the findings at necropsy. These are illustrated by beautifully reproduced black and white photographs of gross specimens and significant microscopic sections.

A minor criticism is that it is difficult for one who is not a pathologist to recognize certain lesions even when they are indicated in the photographs of the low-power magnifications of some of the microscopic sections. In general the photomicrographs at higher magnifications are more rewarding.

The first chapter presents a review of cytology and cellular pathology beautifully illustrated with colored and black and white plates, showing the various normal tissues together with the pathologic changes in the nervous system as demonstrated by various staining methods. Subsequent sections deal with inflammatory disorders; toxic and nutritional disorders; demyelinating disorders; vascular, traumatic, and degenerative disorders; neoplastic lesions; developmental disorders; and sequelae of perinatal and postnatal disorders. The material in each section is well balanced and no single section seems to dominate the atlas.

The bibliography is brief, including primarily textbook references. The indexing and organization of contents seem to be most satisfactory. *(Gordon M. Martin, M.D.)*

"Let Brotherly Love Continue"...

portrait of philadelphia. IV

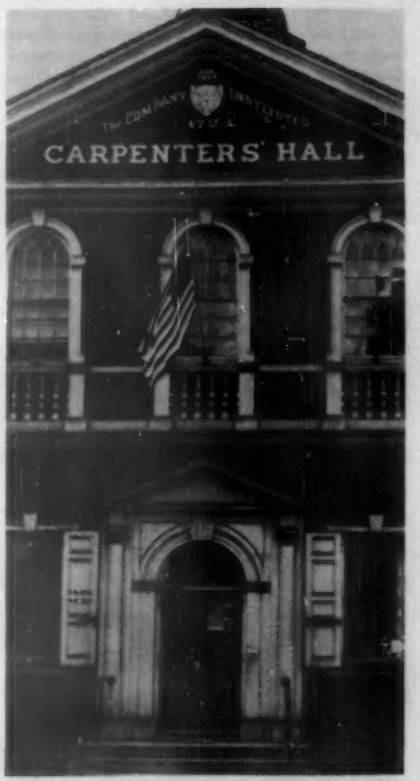
For all Americans, a visit to Philadelphia is in the nature of a visit to the old homestead. This is where our nation was born, where the ringing of the Liberty Bell, with its unintentionally prophetic inscription, called citizens together to hear the Declaration of Independence. This is where Betsy Ross made her nation's flag, and at Valley Forge, Washington's men suffered the terrible ordeal which was the price of national liberty.

Our country's past is very much in evidence in Philadelphia's present. For example — in a men's club so old that it was once a sovereign State, founded by hunters and fishermen who had a grant from the King of England, a guest who dined with them in 1787 is still toasted at every meeting. The club is The State in Schuylkill, better known as the Fish House and the home of fish-house punch. The toast is "to the late George Washington."

Again, the newest second lieutenant in First Troop of City Cavalry is called a "cornet" and may be the only cornet in the world. When First Troop began, which was in 1774, that was the fifth grade of commissioned officer in the British cavalry. The Troop is the oldest active component of the United States Army.

Still holding quarterly meetings is the Carpenters' Company, organized by master carpenters in 1724. This is the grade guild which loaned its hall, back in 1774, to the first Continental Congress. The 49 present-day members are building contractors and architects. The historic building is open to the public, but still functions as the guild's offices.

Courts of law in younger cities have bailiffs. In the Philadelphia courts this officer retains the fine old title of tipstaff. The chief clerk has the title in use when George was King; he is a prothonotary. And ambitious Philadelphians still take courses from the Junto, the self-improvement association organized by Ben Franklin, and now a nonprofit adult night school.



CARPENTER'S HALL . . . meeting place of the first Continental Congress in 1774.

Though the central-city parade of the Mummers at New Year's started in 1900, the custom of going about in lavish costumes dates back to 1720 or so. Mummers are called "New Year's Shooters" because it was traditional to fire off a fowling piece to welcome in the new year. Some still do it.

There are still a few houses with that handy Philadelphia invention, the "busybody." That's a mirror set at second-

THE LIBERTY BELL . . . symbol of freedom, stands in historic glory in the main corridor of Independence Hall.

INDEPENDENCE HALL . . . where the Declaration of Independence and Constitution of the United States were signed.

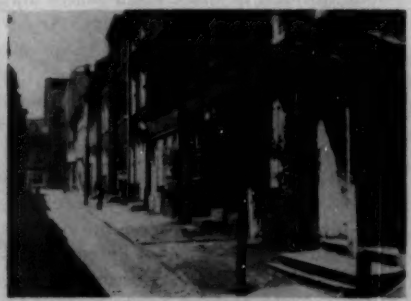
floor level so you can see who's calling before you decide whether or not you are in.

This is the first planned city in America. Thus Sassafras Street was named by Billy Penn himself, and so was High Street. You won't find Sassafras now; sportier Philadelphians took to racing their horses there and it has long been called Race Street. But then you won't find High Street, either. The citizens put up market sheds and have ever since called it Market Street. That's the street up which a young runaway from Boston strolled one October morning in 1723, with but a dollar in his pocket. He was Benjamin Franklin.

In and around the city there is a remarkable bustle. A cluster of gleaming new buildings is steadily rising in the heart of the downtown district. Entire blocks of buildings are being razed to create a mall-like setting of beauty and dignity for Independence Hall.

Most visitors want to see Independence Hall, where the Assembly Room has just been partially restored and refurnished to look as it did in 1775 to 1787. A good many offers are received to fix the crack in the Liberty Bell, and custodians have to explain that the crack is nearly as sacred as the bell itself; it wasn't until the bell went silent that it developed into the world's greatest symbol of freedom.

Valley Forge, 18 miles to the northwest, out Paoli way, draws visitors by the thousand. No battle was *fought* at Valley Forge except the heroic one to *live* through a winter of starvation, cold, and disease for another chance to expel the British.



ELFRETH'S ALLEY . . . oldest street in America.

VALLEY FORGE BATTLEFIELD . . . where the contest for existence and survival was valiantly fought and gloriously won.

BETSY ROSS HOUSE . . . birthplace of "Old Glory." Here, in 1776, Mrs. Ross was commissioned to make the first American Flag — adopted by Congress in 1777.

The Red Coats were spending that winter comfortably in Philadelphia, and the boys from Valley Forge liked to sneak into town now and then and bust up their parties!

Betsy Ross' house is popular with visitors. So is Old Swedes Church, Glorei Dei, built in 1700 by the first settlers, who were Swedes.

Philadelphia is a city which has special meaning and interest for individual visitors. A hospital man wants to have a look at Philadelphia General, the first public hospital in the United States and still going strong after 105 years. Architects may want to see the old mansions in Germantown; physicians know the town as a great medical center. Businessmen are interested in the sources of some Philadelphia products. The city is the chief producer of a great variety of items ranging from locomotives, streetcars, and men's clothing to fountain pens and cigars. A pharmacist knows Philadelphia for its early apothecary shops. A fire-insurance man wants to wander down to south Fourth Street, where, at the sign of the hand-in-hand, the oldest fire-insurance company in the land is still doing business. This is the wonderfully named Philadelphia Contributionship for the Insuring of Houses from Loss by Fire, formed in 1752.

Down the street is the Mutual Assurance Company, and the insurance man knows the significance of the green tree which is its firemark. It seems the Contributionship decided not to insure houses where there were trees to increase the hazard. Tree-loving members wouldn't stand for that, and thus Mutual, which would insure houses in spite of trees, came into being.

After seeing the historic sites, many visitors want to see the Philadelphia suburbs, especially those along "The Main Line" (of the Pennsylvania Railroad).

The Main Line's old grandeur is gone; the ten-million dollar castle of Edward T. Stotesbury, for example, is now the laboratory of a salt company. But it remains one huge garden of flowering fruit trees, well-tended hedges and lawn, azalea, roses, and rhododendron.

Philadelphia speech has a few definite characteristics. Those fixtures from which you get water are spigots not faucets. Blocks are squares. The local professional football team is the Iggles, spelled "Eagles." If you sleep late, you are "sleeping in." The town is by common consent "Philly"; sweet breakfast rolls are "coffee cake."

Pretzels are sold on the street, to be eaten with a smear of mustard. A standard summer luncheon — and a good one — is fried oysters served with chicken salad. It is the home of Philadelphia cream cheese and Philadelphia pepper-pot soup, and Philadelphians are convinced that nobody has eaten ice cream until he has eaten Philadelphia ice cream. Another successful idea and excellent breakfast dish is scrapple — a cross between sausage and corn-meal mush.

Philadelphia is one of the American cities the British like most to visit and that may be because there is much that is British in the Philadelphia character. Again, like the British, Philadelphians take deep interest in rowing. There have been regattas on the Schuylkill (pronounced Skookull) for more than a century. Because ships are built on the Delaware River it was proudly known for many years as "The American Clyde." The Schuylkill, as a watery recreation ground, is sometimes referred to as the American Thames.

Philadelphians are quietly proud of their city's place and influence in American history; they don't forget that Philadelphia was the chief city of the country. It was an old city at the time the Declaration of Independence was signed. It is about a century older than Los Angeles and San Francisco, and it was one of the world's major cities when Chicago was still a fort.

The first law school in the United States, the first medical college, the first public library, the first public school, the first art institute, the first daily newspaper were Philadelphia ideas.

The new Penn Center development in the center of downtown Philadelphia began with Three Penn Center, an office building composed chiefly of great gleaming bands of windows and as modern as tomorrow. Steel rose skyward for a new hotel, then for another office building and a transportation center. Philadelphia can be your *vocation* with *play!*

All photographs courtesy of Philadelphia Convention and Visitors Bureau of the Chamber of Commerce.

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36th Annual Session, American Congress of Physical Medicine and Rehabilitation, Philadelphia, Hotel Bellevue Stratford, August 24-29, 1958.

medical news

Members are invited to send to this office items of news of general interest, for example, those relating to society activities, new hospitals, education, etc. Programs should be received at least six weeks before date of meeting.

Dr. Mahoney Appointed

The American Academy of Physical Medicine and Rehabilitation appointed Florence I. Mahoney, Baltimore, to participate in the National Conference on Nursing Homes and Homes for the Aged held in Washington, D. C., February 25-28. The meeting was conducted by the Surgeon General, U. S. Public Health Service. Dr. Mahoney's work in Baltimore and consultations for the State of Maryland have received national recognition in the field of chronic diseases.

President Rose Speaks

Donald L. Rose, Kansas City, Kans., spoke at the Easter Seal Society's 30th annual convention held in springfield, Mo., October 19, 1957.

New York Society of Physical Medicine and Rehabilitation

The following officers have been elected effective with August, 1957: Bruce B. Grynbaum, President; Jerome S. Tobis, President-Elect; Bernard Stoll, Vice-President; Jerome Weiss, Treasurer; Madge C. L. McGuinness, Secretary, and Henry Fleck, Assistant Secretary. The Executive Committee has as its members Otto Eisert, Chairman; Donald Covalt, Robert C. Darling, Milton Lowenthal and Joseph B. Rogoff.

American Academy for Cerebral Palsy

The American Academy for Cerebral Palsy met in New Orleans last November.

The following officers were elected for 1958: William T. Green, President; Robert A. Knight, President-Elect; Samuel B. Thompson, Treasurer and Raymond B. Rembolt, Secretary.

The 1958 meeting will be held in Providence, R. I., Sept. 25-27, Sheraton Biltmore Hotel.

Pennsylvania Academy of Physical Medicine and Rehabilitation

The Pennsylvania Academy of Physical Medicine and Rehabilitation held its regular meeting in September. The following officers were elected for the year: Derrick H. Cross, President; William J. Erdman, II, Vice-President, and J. Murl Johnston, Secretary-Treasurer.

Kirkpatrick Memorial

The Physical Medicine and Rehabilitation Clinic owned and operated by Nila Kirkpatrick Covalt at Winter Park, Florida, has legally been set up as a trust and established as a non-profit organization. This center will henceforth be known as the Kirkpatrick Memorial Rehabilitation Institute. Dr. Covalt will continue as the Medical Director and Administrator. The Institute offers a comprehensive program of rehabilitation, and furnishes the services of physical, occupational and speech therapists within the Institute itself. Psychological testing, vocational counselling and social services from the community resources are available when needed.

Recent Publications by Members

The following articles were published in The Journal of the American Medical Association, October 19, 1957:

Howard A. Rusk and co-authors, "Cardiac Rehabilitation."

Grace M. Roth and co-authors, "Paravertebral Alcohol Block of Lumbar Sympathetic Nerves."

November 2, 1957: Jack Meislin, "Management of Somatic Complications in Psychiatric Patients."

November 23, 1957: Louis B. Newman, "The Role of Physical Medicine and Rehabilitation in Rheumatic Heart Disease."

December 14, 1957: Frederic J. Kottke, "Physiatric Aspects of Care of the Severely Injured Patient."

December 21, 1957: Jerome Tobis; Milton Lowenthal and co-author, "Evaluation and Management of the Brain-Damaged Patient."

Edward F. Delagi and co-author, "A Home Care Rehabilitation Program for Ex-urban Communities." Journal of Chronic Diseases, December, 1957.

Igho H. Kornblueh and co-authors: "Outline of an Exercise Program for Patients with Myocardial Infarction." The Pennsylvania Medical Journal, December, 1957.

Igho H. Kornblueh and co-authors: "Observations of the Effects of Artificial Ionization on the Burned Patient." Bulletin International Society Bioclimatology & Biometeorology, September, 1957.

Igho H. Kornblueh and co-author, "The Difficulties Encountered in Evaluation of the Effects of Artificial Ionization of the Air." Bulletin International Society Bioclimatology & Biometeorology (ISBB), September, 1957.

James G. Golseth, "Electromyographic Examination in the Office." California Medicine, November, 1957.

Charles D. Shields, "Some Factors Affecting Availability of Physical Medicine Services." Medical Annals of the District of Columbia, July, 1957.

Basil Kiernander, "Postural Re-education—A Critical Examination of Methods." Proceedings Royal Society of Medicine, September, 1956.

Basil Kiernander, "Contribution to Symposium on Rehabilitation in the Royal Air Force." Proceedings Royal Society of Medicine, March, 1957.

Basil Kiernander, "Physiotherapy in the Rheumatic Diseases." The Medical Press, July, 1957.

Harry T. Zankel, "Functional Training in Parkinsonism." Geriatrics, November, 1957.

The following articles were published in Department of Medicine and Surgery, Program Guide, Information Bulletin, Physical Medicine and Rehabilitation Service, August 30, 1957:

Lewis A. Leavitt and co-author, "Geriatrics: Treatment, Research, Rehabilitation."

Leo Rosenberg and co-authors, "The Classification and Management of Patients with Long-Term Illness."

Course in Geriatric Rehabilitation

Under the auspices of the New York Medical College-Metropolitan Hospital Center, the Department of Physical Medicine and Rehabilitation is offering a two week full-time course in geriatric rehabilitation at Bird S. Coler Hospital. This course will be given from April 21 through May 2, 1958, for registered nurses, occupational therapists, physical therapists, and social workers. The curriculum covers physiologic, medical, psychological and social principles and practices of rehabilitation care for geriatric, chronically ill persons.

Tuition fee is $100.00. A number of traineeships may be available through the United States Office of Vocational Rehabilitation and the New York State Department of Health.

For information write: Dr. Jerome S. Tobis, Director, Department of Physical Medicine and Rehabilitation, New York Medical College, 1 E. 105th St., New York 29, N. Y.

Scholarships for Advanced Specialized Training in Work with the Cerebral Palsied

Scholarships are available to help doctors, physical therapists, occupational therapists, speech therapists, special educators and other rehabilitation personnel obtain specialized training for work with the cerebral palsied. Amount of grant is dependent upon length and scope of course and other financial aid available to applicant. Candidates must have completed the required professional training in their own professional fields and be eligible for membership in their own professional associations. Scholarships are granted for courses of not more than three months duration having primary emphasis on cerebral palsy. The training must have the guidance and participation of a member of the American Academy of Cerebral Palsy or prior approval of members of the Academy serving as Counselors to the National Society. Applications are reviewed twice annually. Deadlines for receipt of applications are as follows: April 1 for courses beginning June through December; October 10 for courses beginning January through May.

Persons interested in training during the summer months must submit completed applications including details on proposed course of study by April 1.

For details on the program and application forms, please write to: Personnel and Training Service, National Society for Crippled Children and Adults, Inc., 11 South La Salle Street, Chicago 3, Illinois.

Fellowships for Counselor Training in Work with the Physically Handicapped

Twenty fellowships in the amount of $300 each will be awarded through the cooperation of the National Society for Crippled Children and Adults and Alpha Gamma Delta Fraternity

for a four-week workshop for counselors of the severely physically handicapped including the cerebral palsied which will be held at the Institute of Physical Medicine and Rehabilitation in New York City from June 16 to July 11, 1958. Awards are made on a competitive basis to qualified professional persons who need and can utilize the training in counseling the physically handicapped. Consideration is given to academic and work background, references, reasons for taking training and utilization of training in the specific geographic location of the candidate. The deadline for receipt of application is March 15, 1958. Forms may be secured from Personnel and Training Service, National Society for Crippled Children and Adults, 11 S. La Salle St., Chicago 3.

Cell Walls Can Be Exploded

Scientists can now explode biological cell walls without disturbing the nucleus, making possible closer study of the cell center, because of a new all stainless steel instrument. In theory, the instrument's operation is like driving a steam roller over an egg, and still keeping the yolk intact for a closer examination. This almost impossible task is being done with a French Pressure Cell made by the American Instrument Company of Silver Spring, Md.

The instrument is almost simplicity itself. The body of the French Pressure Cell is six-inches long, and three-inches in diameter. A one-inch diameter hole drilled in the center is fitted with a piston. Blood cells, unicellular organisms, special animal tissue, or cellular structure of any living tissue or serum which are to be studied are put into the cylinder. When the specified amount of a given sample is in the instrument, air is removed. The cell is placed under a hydraulic press, and pressures up to 20,000 psi are applied, and suddenly released. The sample's cellular walls are exploded, but the nucleus is unaffected for examination of its biochemical components.

Convulsant Effects of Tranquilizers

Large doses of chlorpromazine, the widely used tranquilizing drug, can produce convulsions in monkeys and may do the same thing to humans.

This latest finding is reported by scientists at the U. S. Public Health Service Hospital, Lexington, Ky., who warn the drug may be hazardous in the treatment of either alcoholism or epilepsy.

A number of reports have appeared suggesting the tranquilizer may have convulsant effects so it was given in large doses to four "normal" monkeys, they report.

All the monkeys developed epileptic-like seizures and three of them apparently began seeing things that did not exist.

One kept searching the floor of his cage as if he were looking for an imaginary object, and occasionally leaped backward as if afraid of something.

The current widespread use of the tranquilizer "warrants speculation" about its use in either epilepsy or the management of addict withdrawals from alcohol and barbiturates, the scientists conclude.

Evaluation of Therapy for Arthritis

A new technic for evaluating the effectiveness of the various drugs used in treating rheumatoid arthritis has been developed by Dr. C. J. Smyth, of the University of Colorado, and Dr. Glenn Clark of the University of Tennessee. To measure the inflammatory and functional index of joints, they count the number of seconds it takes the patient to walk 25 feet, and they measure the patient's ability to make a fist with an arthritic hand, his ability to place his hands behind his head, and his ability to bend his legs. Such findings, they point out, are far more objective than is the patient's testimony as to how he feels. They say that their measurements take about 20 minutes, and that they are attempting to simplify them.

After testing patients who had been receiving meti-steroids such as prednisone, and the effects of cortisone, phenylbutazone and aspirin, the investigators said prednisone apparently was most efficient in reducing joint inflammation. Aspirin reduced pain without lessening the inflammation. The restoration of function, they said, depends principally on the reducing of inflammation.

Aspirin No Longer a Secret

Aspirin, the most familiar drug in mankind's medicine chest, goes to work when the pituitary gland changes it into an oxidized compound known as gentisic acid, Prof. John E. Christian and Ross Crabtree of the Purdue University School of Pharmacy have found.

They knew that gentisic acid has the same effect as aspirin, minus aspirin's toxicity. They also knew that rheumatic fever patients and others who take large doses of aspirin excrete more gentisic acid than normal people do. So they devised an experiment to discover whether gentisic acid is a breakdown product of aspirin and where this process takes place.

First they induced fever in rats by feeding them a peptone solution. Then they injected aspirin labeled with carbon-14 into the rats.

Forty-five minutes later they analyzed the rats' blood, lungs, adrenal and pituitary glands — the places where aspirin accumulates, according to earlier experiments under Prof. Christian's direction.

In the pituitary, the body's "master gland," they found gentisic acid. It was labeled with carbon-14. In none of the other organs in which aspirin accumulates was this combination found.

Gentisic acid is an oxidized product of acetylsalicylic acid, or aspirin. It is less toxic than aspirin because of the addition of a hydroxyl group.

The pituitary gland contains large amounts of vitamin C, which is an oxidizing agent. Further, the pituitary gland is the next-door neighbor of the body's heat control center in the posterior portion of the brain, the hypothalamus.

These findings lead the Purdue scientists to believe that a modified gentisic acid molecule might prove even more useful and safer than aspirin itself.

Atomic Medicine In Use at VA Hospitals

Veterans Administration for the first time is using atomic medicine to probe the baffling mysteries of mental illness.

By tagging substances with radioactive phosphorous, researchers at the VA hospital in Sepulveda, Calif., are tracing the compounds through complex chemical and biological changes in the body for clues to the origin of mental disease. The group is especially interested in amounts of a compound called serotonin in the central nervous system which may be involved in the action of tranquilizing drugs. They also are using atomic medicine to study the effects of drugs that are used in treatment of or research into mental illness. Research with radioisotope tracers is providing new information that will lead to better understanding and treatment of hundreds of diseases.

Cancer, heart conditions, and hardening of the arteries are among the main illnesses under investigation in the nationwide radioisotope program involving some 600 studies at 51 hospitals.

The VA hospital in Boston is studying resistance to leukemia, or cancer of the blood-forming organs, and how the disease is transmitted.

The Hines, Ill., VA hospital is investigating effects of hormone treatment in heart attack patients, the role of fat in diet of patients with hardening of the arteries, new devices to locate brain tumors, and implantation of radioactive phosphorus at sites from which brain tumors have been removed.

At the Ann Arbor, Mich., VA hospital, doctors have used radioactive phosphorus in testing success of skin grafts. Rose Bengal, a radioactive synthetic dye, is helping in study of jaundice at the hospital, and radioactive iron is being used to measure effectiveness of cobalt in treatment of anemia that does not respond to other therapy.

The VA hospital in Birmingham, Ala., is studying rheumatoid arthritis by means of radioisotope tracers.

At the Houston, Texas, VA hospital, a research group has tagged snake venom with radioisotopes for study of diffusion of the poison.

The Seattle VA hospital is studying the growth influence of natural radioactivity that reaches the earth from outer space.

Humans Can Breathe Minus Most Muscles

Despite almost total loss of breathing muscles, the human body can still maintain effective respiration, reported Dr. Allan Hemingway of the University of California at Los Angeles Medical School.

Dr. Hemingway described results of a U. S. Public Health Service-supported study with paraplegics to a recent American Physiological Society meeting at the State University of Iowa.

The UCLA physiologist and his associate, Dr. Ernest Bors, examined 63 paraplegics from the Long Beach VA Hospital. Most of these patients had injuries which had completely severed their spinal cords and paralyzed muscles of respiration. These include muscles between ribs, abdominal muscles, and the diaphragm.

Patients who had injuries high in the spinal cord, in the neck region, had lost the use of all major breathing muscles except the diaphragm. Despite this handicap, they possessed surprisingly effective respiration, as measured by pulmonary function tests. Paraplegics with damage to the middle or lower part of the spinal cord had more breathing muscles available and retained better pulmonary function.

Common Cold Still To Be With Us

The man in the street is still a long way from being protected from a stopped-up head and runny nose by a cold vaccine, despite reports from Baltimore on the production of a vaccine against one type of cold.

The big problem in "cold" research is deciding what actually is a cold and what is something else. Added to that is the fact that the "common cold," a term from which some scientists shy, can be caused by a great many different viruses hard to identify as the single cause of the illness.

DECEASED MEMBERS

DR. WILLIAM LEE HART

Dr. William Lee Hart, San Antonio, Texas, died at the age of 76 in December, 1957.

Dr. Hart was born in Yorkville, S. C., on January 27, 1881. He was graduated from the University of Maryland School of Medicine in 1906. He was Dean Emeritus of Southwestern Medical School, Dallas. A retired colonel in the U. S. Army, his last affiliation was with Brooke Army Hospital in 1941.

The cause of death was cerebral thrombosis.

DR. KENNETH W. KEEVER

Dr. Kenneth W. Keever of Magnetic Springs, Ohio, died on October 9, 1957 at the age of 51.

Dr. Keever was born in 1906 and was graduated from Jefferson Medical College in 1934. He was Medical Director of Magnetic Springs Rehabilitation Center and on the staff of Union County Memorial Hospital.

The cause of death was coronary thrombosis.

DR. STILLMAN D. LITTLE

Dr. Stillman D. Little, Phoenix, died on October 18, 1957 at the age of 85.

Dr. Little was graduated from the Medical School of Maine, Portland, in 1903. He was an associate member of the American Medical Association.

The cause of death was cerebral thrombosis.

DR. JOHN R. HUNTER

Dr. John R. Hunter, Lewistown, Pa., died on January 25, 1957 at the age of 88.

Dr. Hunter was graduated from Medico-Chirurgical College of Pennsylvania in 1893. He was an associate member of the American Medical Association; fellow of the American College of Surgeons; member of the surgical staff and Board of Trustees at Lewistown Hospital for many years.

The cause of death was cerebral thrombosis.

Personals

Basil Kiernander, London, England, was elected honorary treasurer of the Royal Society of Medicine. — The International Society of Bioclimatology and Biometeorology at its meeting in Vienna, Austria, September 24, reelected **Igho H. Kornblueh** of Philadelphia as Chairman of the Section on Ionization of the Air. — The Congress was well represented at the clinical meeting of the American Medical Association, held in Philadelphia, Dec. 3-6, 1957. Following Congress members participated: **Richard T. Smith,** Philadelphia, was a panel member member in a discussion on the treatment of arthritis; **Emery K. Stoner** of Philadelphia was a member of the Symposium on Management of the Hemiplegic Patient. Scientific exhibits were presented as follows: **Howard F. Polley,** Rochester, Minn., "Hypercortisonism in Patients with Rheumatoid Arthritis;" **Darrell C. Crain,** Washington, D. C., "The Hands in Arthritis and Related Rheumatic Conditions;" **Albert A. Martucci,** Philadelphia, "Physical Medicine and Rehabilitation in Community Hospitals;" Dr. Martucci with **Harold Lefkoe,** Philadelphia, "Practical Rehabilitation in Community Hospitals;" **Harold W. Glattly,** Washington, D. C., "The Artificial Limb Program in the United States," and **Ralph E. DeForest** and **Howard A. Carter,** Chicago, "Artificial Respiration." — Dr. Martucci participated in the Third Inter-American Conference on Rehabilitation, held in Guatemala City in November. — The New York Academy of Medicine held its regular monthly meeting in December. **Hans J. Behrend,** New York City, acted as moderator of a Symposium on Mechanism and Management of Pain Syndromes. — **Michael M. Dacso,** New York City, was elected to Fellowship in the American College of Physicians on November 9. — The expanded Iron Range Rehabilitation Center, Virginia, Minnesota had as its guest dinner speaker in July, **Frank H. Krusen** of Rochester, Minn. Dr. Krusen has been cited by Governor Freeman for his service as chairman of the Governor's advisory committee on Vocational Rehabilitation. He was also elected

vice president of the staff of the Mayo Clinic at the annual staff meeting in November. — **Herbert Kent,** Oklahoma City, presented the following paper at the Oklahoma Chapter meeting of the American Physical Therapy Association, "Deviation of Gait by the Amputee." — The Missouri Society for Crippled Children and Adults, Inc., recently elected **D. Elliott O'Reilly,** Clayton, Mo., president. — The subject "Rehabilitation of the Aged" was discussed by **Donald L. Rose,** Kansas City, Kans., at a meeting in Emporia sponsored by the Lyon County Welfare Dept. — **Harry T. Zankel,** Durham, N. C., participated in the meeting of the Section on Physical Medicine and Rehabilitation, Southern Medical Society held in Miami Beach. His paper was titled "SAE (Stimulation Assistive Exercise)." Dr. Zankel read a paper on electromyography at a conference of VA Chiefs of PM&R in Memphis the early part of December. — A new book has been published entitled "An Oklahoma Rebel" which is the life story of **John C. Hubbard** of Oklahoma City. — The American Institute of Ultrasonics in Medicine held its international conference in Los Angeles last September. The following Congress and/or Academy members participated: **Jerome Gersten,** Denver; **Justus F. Lehmann,** Seattle; **Frank H. Krusen,** Rochester, Minn.; **William Bierman,** New York City; **David Rubin,** Los Angeles; **Hans J. Behrend,** New York City; **John H. Aldes,** Los Angeles; **Robert Bingham,** Riverside, Calif.; **Henry V. Morelewicz,** Buffalo; **Eugene Weissenberg,** San Juan, P. R.; **Max K. Newman,** Detroit; **Arthur Jones,** Portland, Ore.; **John H. Kuitert,** Ottawa, Canada; **Kenneth Phillips,** Miami, Fla., and **Ferdinand Schwartz,** Birmingham, Ala. — **Frank J. Shaffer,** formerly of Memphis, has been appointed chief of program development, PM&R Service, VA, Washington, D. C. — **Frederick J. Balsam** of Baltimore has been appointed assistant chief, PM&R Service, VA Hospital, Fort Howard, Md. — The North Carolina Medical Society chose **Lenox D. Baker,** Durham, president-elect. — **John H. Aldes,** Los Angeles, spoke on "The Rehabilitation of the Multiple Sclerosis Patient" at the Seventh World Congress of the International Society for the Welfare of Crippled held in London in July. — The International Medical-Surgical Convention, held in Turin, Italy last June heard a paper on physical medicine and rehabilitation by **Dominic A. Donio** of Allentown, Pa. The paper discussed the value of PM&R in an acute general hospital and its relationship to the community. Dr. Donio was the official delegate for the International Society for the Welfare of Cripples. — **Bror S. Troedsson,** Minneapolis, spoke on "Rehabilitation Services for the Older Non-institutionalized Person" at the Conference on Aging, South Dakota State College of Agriculture and Mechanic Arts in July. — The Illinois Academy of General Practice held its ninth annual post graduate program in October. **Maxwell D. Flank,** Oak Park, Ill., presented a series of lectures on "Manipulations, Machines, and Common Sense." — **S. Malvern Dorinson,** San Francisco, discussed "The Use of Physical Medicine in Orthopedics" at the Orthopedic Conference, Mt. Zion Hospital, San Francisco. He was guest speaker on "Physical Medicine in General Practice" at Mercy Hospital in Bakersfield, Calif., and acted as moderator of a program on "Medical Problems and Rehabilitation in Catastrophic Diseases" at the San Francisco Chapter of the National Rehabilitation Association. He also gave a talk on Cerebral Palsy to the Santa Rosa Chapter of the National Society for Crippled Children.

Books Received

Books received are acknowledged in this column in full return for the courtesy of the senders. Reviews will be published in future issues of the journal. Books listed are not available for lending.

The Principles and Practice of Diathermy by Bryan O. Scott; **Integrated Anatomy and Physiology** by Carl Francis and Gordon Farrell; **The Infantile Cerebral Palsied** by Eirene Collis; William Dunham, et al; **Ten Million and One: Neurological Disability as a National Problem; Sport Injuries Manual** by Donald F. Featherstone; **The Adaptation of Recreational Activities for Men in the Rehabilitation of Lower Limb Injuries** by Veida Barclay; **Aids to Osteology** by Nils L. Eckhoff; **A Classified Bibliography of Gerontology and Geriatrics** by Nathan W. Shock; **Exercises Educatifs En Athletisme** by E. Vanden Eynde; **Spondylitis Ankylopoetica** by Victor R. Ott and Hans Wurm; **A Frontal Section Anatomy of the Head and Neck** by Otto Kampmeier, et al; **Proceedings of the Second International Congress of Physical Medicine, Copenhagen, 1956; Trends in Gerontology** by Nathan W. Shock; **Essentials of Fluid Balance** by D. A. K. Black; **The Hangover: A Critical Study in the Psychodynamics of Alcoholism** by Benjamin Karpman; **Applied Muscle Action and Coordination** by Kathleen I. McMurrich; **The Chronically Ill** by Joseph Fox; **Deafness, Mutism and Mental Deficiency in Children** by Louis Minski; **Sex Perversions and Sex Crimes** by James M. Reinhardt; **Atomic Energy in Medicine** by K. E. Halnan; **Comparative Physiology of the Nervous Control of the Muscular Contraction** by Graham Hoyle; **Textbook of Orthopaedic Medicine: Diagnosis of Soft Tissue Lesions** by James Cyriax; **An Introduction to Electrocardiography** by L. Schamroth; **Autonomic and Imbalance and the Hypothalamus: Impli-**

cations for Physiology, Medicine, Psychology and Neuropsychiatry by Ernst Gellhorn; **The Handicapped and Their Rehabilitation** by Harry A. Pattison.

Correspondence

Baruch Essay Award

At the annual meeting of the Board of Governors of the American Congress of Physical Medicine and Rehabilitation the Bernard M. Baruch Essay Award for medical students was established. The executive secretary was directed to inform Mr. Baruch of the establishment of this award and on December 16, 1957 the following letter was sent to him:

"It is an honor and a privilege for me to tell you that at the last meeting of the Board of Governors of the American Congress of Physical Medicine and Rehabilitation the Bernard M. Baruch Essay Award was established. The announcement of this award will appear in the January, 1958 and subsequent issues of the ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION. A copy of the journal will be sent to you as soon as it is off the press.

"The American Congress of Physical Medicine and Rehabilitation is indeed grateful for your interest in physical medicine and rehabilitation and feels that the establishment of this annual award is but small acknowledgement for the continued and valuable support you have given this specialty."

Under date of December 20, 1957 Mr. Baruch replied:

LITTLE HOBCAW

"My dear Miss Augustin —

Many thanks for the honor the Board of Governors of the American Congress of Physical Medicine and Rehabilitation have bestowed on me.

Please advise them of my pleasure.

Appreciatively,
/s/ Bernard M. Baruch"

American Physical Therapy Association Meets

The 35th annual conference of the American Physical Therapy Association will be held at the Olympic Hotel, Seattle, Washington, June 15-20, 1958.

The scientific program will be centered on the neurophysiological basis for therapeutic exercise. Three of the newer concepts of exercise will be explored.

Dr. Clemmesen Visits New York

Dr. Svend M. Clemmesen, Copenhagen, Denmark, will be the first Louis J. Horowitz visiting professor of physical medicine and rehabilitation at New York University-Bellevue Medical Center's College of Medicine. This visiting professorship was created in honor of the late Mr. Horowitz, benefactor, and one of the original founders of the Center's Institute of Physical Medicine and Rehabilitation, who bequeathed approximately $12 million to the Institute since its opening in 1948.

Dr. Clemmesen, who will be at the Medical Center during the month of April, is in charge of the department of physical medicine and rheumatology, Kommunehospitalet, Copenhagen, and is a lecturer at the University of Copenhagen. Dr. Clemmesen is president of the International Federation of Physical Medicine and was president of the Second International Congress of Physical Medicine held in Copenhagen in 1956. He has been the recipient of awards by medical organizations in France, Great Britain, Argentina and the United States and was created a Knight of Danneborg by the King of Denmark and a Knight of The Falcon of Iceland by the President of Iceland.

In commenting on this appointment, Dr. Howard A. Rusk, professor and chairman, department of physical medicine and rehabilitation, said: "We are particularly fortunate that our first Louis J. Horowitz visiting professor is to be such a distinguished internationally-known scientist as Dr. Clemmesen. We have long placed great emphasis on the international aspects of rehabilitation. This year we have 55 physicians and other reha-

bilitation workers from 27 different nations in training. Dr. Clemmesen's month with us will result in a rich contribution not only to our own staff, our American students and American medicine, but to advancing physical medicine and rehabilitation throughout the world."

While in the United States, Dr. Clemmesen will also participate in the Fifth International Congress of Internal Medicine in Philadelphia, April 24-26, 1958.

Physical Therapy on Wheels

Physical Therapy via station wagon, as a means of interesting young people in it as a career, will be the objective of a 43-state, 19,000 mile tour to be undertaken by a student and an instructor of the department of physical medicine, College of Medical Evangelists, Loma Linda, California, Seventh Day Adventist Institution.

Dr. Russell Youngberg *(left)* and Charles Thomas *(center)*, will man the vehicle using equipment given by the Birtcher Medical Foundation, Los Angeles. The corporation which manufactures equipment used in medicine, has given a grant to the college for the purpose of the trip. Demonstrations will be made to interest college, high school and other youth groups in physical therapy. The two medical men will be available for consultation at the various stops. In announcing the project, Cecil Birtcher *(right)* said, "It is my feeling that the national shortage of doctors and physical therapists will be alleviated as young people are made aware of the satisfaction in physical therapy careers."

Starting in January, the tour is scheduled to travel 19,000 miles in more than 43 states.

Charles Thomas was born just eight degrees above the equator, in the southern tip of India. Arriving in the United States in 1946 he attended Pacific Union College where he majored in biology. He completed his course in physical therapy at the College of Medical Evangelists, Loma Linda, Calif., in 1952. For the last four years, he has been associated with the School of Physical Therapy as an instructor of technics and as an assistant in physical medicine.

Dr. Russell E. Youngberg, born in India, served in the United States Army from 1952-1954 as regimental surgeon, 5th Cavalry in Japan and Korea. He became impressed with rehabilitation accomplishments among wounded Republic of Korea soldiers and interested in the medical missionary centers in the Far East and South East Asia. He is a graduate of the College of Medical Evangelists, Loma Linda, Calif., and obtained graduate training in physical medicine and rehabilitation under a National Foundation for Infantile Paralysis fellowship. Actively engaged in College of Medical Evangelists recruitment, he is part of a team touring 43 states interesting young people in physical therapy as a career.

Physical Medicine Department Established

The University of Washington School of Medicine at Seattle has established a department of physical medicine and rehabilitation. The plan was approved in December by the board of regents who accepted a gift of $34,700 from the Sister Elizabeth Kenny Foundation of Minneapolis to be used for the purchase of equipment in the Rehabilitation Center scheduled to open in 1959. Dr. Justus Lehmann heads the department which will provide training for medical students and a graduate program for physicians who wish to specialize in rehabilitation work. It will also train physical, occupational, speech and hearing therapists and medical and psychiatric social workers.

Dr. Krusen Assists in Preparation of AMA Guide

Dr. Frank H. Krusen, head of the Section of Physical Medicine and Rehabilitation in the Mayo Clinic, Rochester, Minnesota, and professor of physical medicine and rehabilitation in the Mayo Foundation, Graduate School, University of Minnesota, was one of several national consultants who assisted in the preparation of the 117-page guide for physicians on the medical evaluation of persons in disability programs who have permanent impairment of the extremities and neck, published in the J.A.M.A. on February 15, 1958. The guide was prepared by the Committee on Medical Rating of Physical Impairment of the American Medical Association.

Fellowship and Stipends Awarded

A $5,000 one-year fellowship has been given anonymously to the department of physical medicine and rehabilitation of New York University College of Medicine. The fellowship, effective July 1, 1958, will provide training for a physician specializing in rehabilitation of the aged and will be given on the geriatric rehabilitation service in New York City's Goldwater Memorial Hospital on Welfare Island. Dr. Michael M. Dacso is director of the 90-bed service which provides rehabilitation for disabled patients over sixty years old. This is one of a number of rehabilitation services in New York City's and neighboring hospitals maintained by the department of physical medicine and rehabilitation.

Increased stipends for its international trainees within the department of physical medicine and rehabilitation of New York University College of Medicine have been announced. This increase is effective July 1, 1958, and will cover all current and future international trainees. There are now 55 international trainees (47 physicians and 8 non-physicians) from 27 nations participating in advanced and basic training in the medical specialty of physical medicine and rehabilitation, physical therapy, occupational therapy, social work and prosthetics in the affiliated teaching institutions of the department. The department bears direct professional responsibility for physical medicine and rehabilitation clinical services at NYU-Bellevue Medical Center's Institute of Physical Medicine and Rehabilitation and University Hospital; The Bellevue Hospital Center; and Goldwater Memorial Hospital, which also has a Geriatrics Rehabilitation Service and the Regional Respirator and Rehabilitation Center. Additional clinical facilities affiliated for teaching purposes include Elmhurst General Hospital; Hospital for Joint Diseases; St. Vincent's Hospital; New York Veterans Administration Hospital (Manhattan); St. Barnabas Hospital; Montefiore Hospital; Beekman-Downtown Hospital; Grasslands Hospital (Valhalla, N. Y.); New York State Rehabilitation Hospital (West Haverstraw, N. Y.); Henry Ford Hospital (Detroit, Mich.); Kessler Institute for Rehabilitation (West Orange, N. J.); and the Children's Seashore House (Atlantic City, N. J.). Under the new stipends, international trainees will be paid an additional minimum maintenance of $125 per month. Trainees not receiving maintenance will receive $250. All trainees with dependents will get an additional $300 per year for each dependent accompanying the trainee to the United States.

Films

Films on "Work Simplification in the Area of Child Care for Physically Handicapped Women" developed at The School of Home Economics, University of Connecticut in cooperation with The Connecticut Team Approach Committee on Research, Demonstrations and Workshops Concerning Physically Handicapped Women and The Office of Vocational Rehabilitation, Department of Health, Education and Welfare.

Motion Pictures

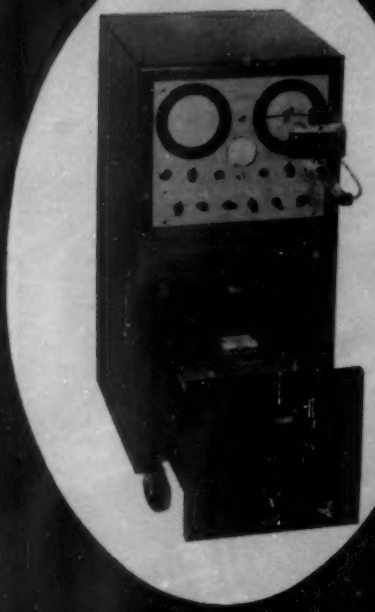
I. "Child Care Problems of Physically Handicapped Mothers": This 16 mm. thirty-minute, sound, color film was designed primarily to orient professional personnel and lay audiences to the problems orthopedically handicapped homemakers face in caring for young children. In a very sensitive manner it presents some of the difficulties with which they are confronted and how various tasks are done. The narration suggests ways in which the practices could be improved.

This film may be *borrowed* for $1.00 to cover handling charges. *Purchase price* $145.00. (subject to change)

II. "Where There's a Will": A 16 mm. twenty-eight minute, sound, color film sponsored and produced in cooperation with John L. Schwab Associates, Management Consultants, Bridgeport, Connecticut. This film includes an introduction by Dr. Lillian M. Gilbreth and portrays various ways in which handicapped mothers have made adjustments in order to resume their homemaking and child care responsibilities. It aims to be both challenging and reassuring to the handicapped mother and to her family.

This film may be *borrowed* for $1.00 to cover handling charges. *Purchase price* $165.00. (subject to change)

All communications concerning films should be addressed to: Audio Visual Center, University of Connecticut, Storrs, Connecticut. In making reservations do not send money. Bills will be mailed.



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- "Employment Outlook for Physical Therapists: A Survey of Salary and Personnel Policies" by Augustin & Ehmann. (Reprint from August, 1957 Archives of Physical Medicine and Rehabilitation)
- American Registry of Physical Therapists: Booklet of Information.
- Guide Law: An Act Defining and Regulating Physical Therapy, etc.
- By-Laws of the American Registry of Physical Therapists.

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To stimulate interest in the field of physical medicine and rehabilitation, the American Congress of Physical Medicine and Rehabilitation will award annually, a prize for an essay on any subject relating to physical medicine and rehabilitation. The contest, while open to anyone, is primarily directed to interns, residents, graduate students in the pre-clinical sciences and graduate students in physical medicine and rehabilitation. The Essay Award Committee suggests that members of the American Congress and American Academy of Physical Medicine and Rehabilitation bring this announcement to the attention of interested persons. The following rules and regulations apply to the contest:

1. Any subject of interest or pertaining to the field of physical medicine and rehabilitation may be submitted.

2. Manuscripts must be in the office of the American Congress of Physical Medicine and Rehabilitation, 30 N. Michigan Ave., Chicago 2, not later than June 2, 1958.

3. Contributions will be accepted from interns, residents, graduate students in the pre-clinical sciences, and graduate students in physical medicine and rehabilitation.

4. The essay must not have been published previously.

5. The American Congress of Physical Medicine and Rehabilitation shall have the exclusive right to publish the winning essay in its official journal, the ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION.

6. Manuscripts must not exceed 3000 words (exclusive of headings, references, legends for cuts, tables, etc.), and the number of words should be stated on the title page. An original and one carbon copy of the manuscript must be submitted.

7. The winner shall receive a cash award of $200.

8. The winner shall be determined by the Essay Award Committee composed of four members of the American Congress of Physical Medicine and Rehabilitation.

9. All manuscripts will be returned as soon as possible after the name of the winner is announced.

10. The American Congress of Physical Medicine and Rehabilitation reserves the right to make no award if, in the judgment of the Essay Award Committee, no contribution is acceptable. Announcement of the winner will be made at the annual meeting.

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3. *Contributions will be accepted from medical students only.*

4. The American Congress of Physical Medicine and Rehabilitation shall have the exclusive right to publish the winning essay in its official journal, the *Archives of Physical Medicine and Rehabilitation.*

5. Manuscripts must not exceed 3000 words (exclusive of headings, references, legends for cuts, tables, etc.), and the number of words should be stated on the title page. An original and one carbon copy of the manuscript must be submitted.

6. The essay must not have been published previously.

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